Mission:

To sustain and restore wetlands, their resources and biodiversity for future generations through research, information exchange and conservation activities, worldwide.

The White-headed Duck *Oxyura leucocephala* is the only stifftail (Oxyurini) indigenous to the Palearctic. It is restricted to a small area of Central Eurasia and North Africa and currently has the distinction of being "endangered". The global population has decreased from over 100,000 individuals in the early twentieth century to 8,000-13,000 individuals in 2002.

The publication presents the current status of the White-headed Duck in the 12 countries of the Central Asian region, namely Afghanistan, China, India, Iran, Kazakhstan, Kyrgyz Republic, Mongolia, Pakistan, Russia (Asian part only), Tajikistan, Turkmenistan and Uzbekistan.

The principal threats to the species and its wetland habitats have been identified and priority actions have been recommended. It is evident that the main focus of action should be to conserve the wetlands on which this and many other waterbird species are dependent. The main recommendations include:

- Review of national policy and legislation to ensure adequate legal protection for the White-headed Duck and its enforcement.
- Sustainable management of water resources to ensure adequate allocation of water.
- Site conservation measures, such as, establishment of an international network of sites of importance for migratory waterbirds.
- Development of a flyway-wide project to build and strengthen links between wetland managers and organisations.
- Development of a comprehensive population-monitoring programme covering the wintering, migratory and breeding seasons.
- Research to define the migration routes and population boundaries of the White-headed Duck.

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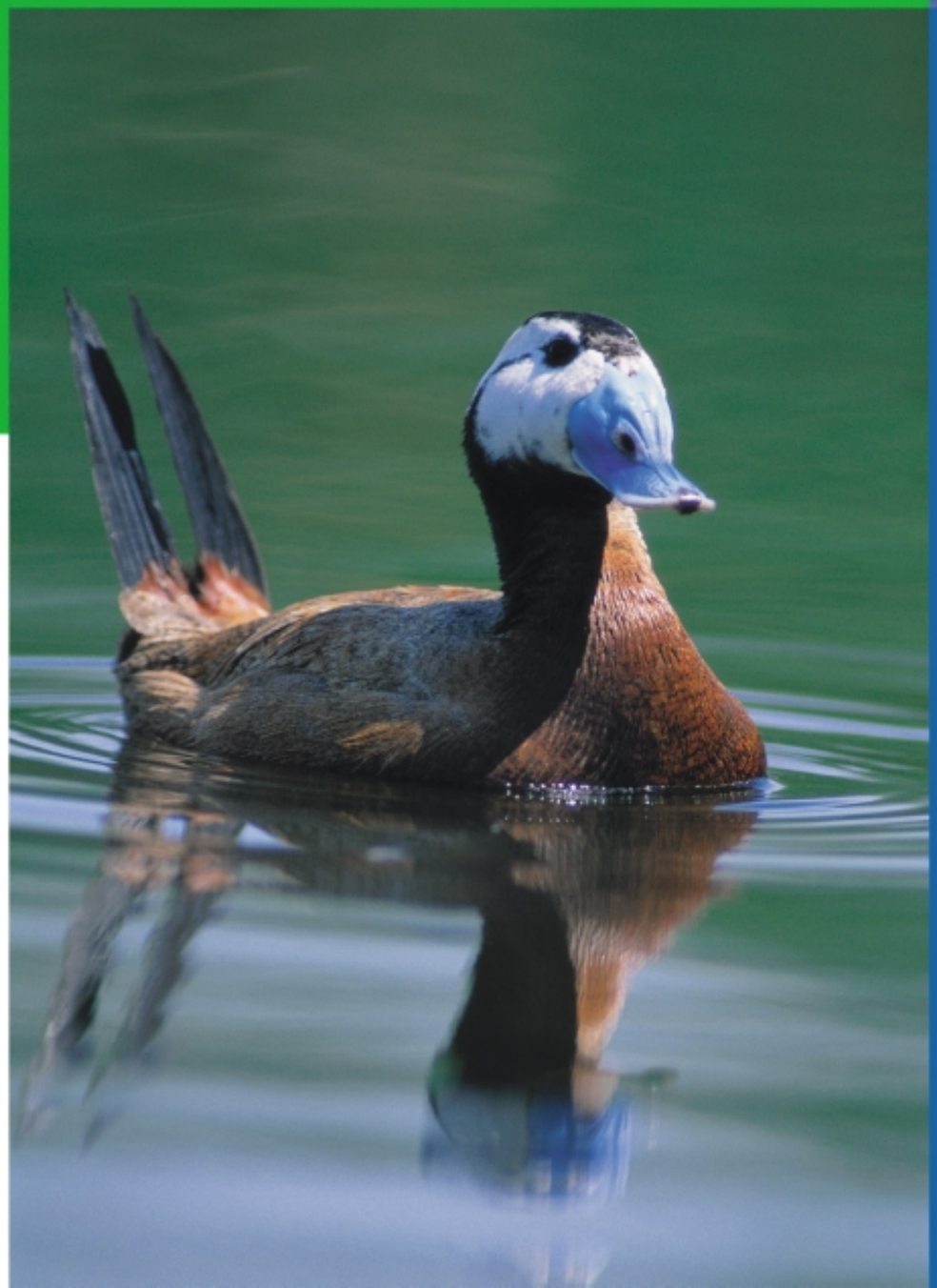
CMS

Status Overview and Recommendations for Conservation of the White-headed Duck in Central Asia

Wetlands International Global Series 15

Status Overview and Recommendations for Conservation of the White-headed Duck *Oxyura leucocephala* in Central Asia

David Li Zuo Wei and Taej Mundkur



WETLANDS INTERNATIONAL

Global Series 15

Status Overview and Recommendations for Conservation of the White-headed Duck *Oxyura leucocephala* in Central Asia

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FOREWORD

The White-headed Duck is an endangered species listed both in the IUCN Red List and on Appendix I of the Convention on the Conservation of Migratory Species of Wild Animals (CMS). The global population, which was probably over 100,000 in the early twentieth century, has decreased to 8,000-13,000 individuals in 2002. On the basis of this alarming decline, the 6th meeting of the Conference of the Parties to CMS (Cape Town, November 1999) identified the White-headed Duck as a priority species for action by designating it for Concerted Actions under the Convention. These include the preparation of a detailed report on the status of the species.

The rapid decline of the Central Asian population of the species is the cause of particular concern among conservationists. As an indicative example of the gravity of the situation, the flock wintering in South Asia (mainly in Pakistan) has decreased from 1,039 in 1968 to around 10 individuals in 2001. This was confirmed by a survey undertaken in Pakistan in 2002 by Wetlands International with the support of CMS. The Convention has therefore welcomed and been pleased to support the initiative from Wetlands International to undertake a study aimed at reviewing the current status and identifying the conservation issues of the Central Asian population.

The present study provides a comprehensive review of the best available information on the current status of the White-headed Duck in the 12 countries of the Central Asian region. It identifies the most important threats to the species and makes recommendations on priority actions to address those threats. Urgent actions are clearly needed, in particular to conserve the wetlands on which this and many other waterbird species are dependent.

The CMS Secretariat would like to invite the Contracting Parties and other Range States to use this report as a key reference and tool for planning and implementing conservation efforts for the species in the region. It also encourages the Contracting Parties and other Range States, bilateral and multilateral development agencies and other donors to provide funding and other necessary support to conservation departments, NGOs and individuals to carry out activities for the conservation of this emblematic species and its habitat.

This report integrates in a broader initiative of Wetlands International and CMS for the development of an Action Plan for the Central Asian Flyway, aimed at providing a comprehensive framework for the conservation of all migratory waterbird species and their wetland habitats in this region. The success of this initiative will depend on the active participation and endorsement of Range States, and CMS invites all Parties and non-Party countries to support the development and subsequent implementation of this Plan.

Finally, I would like to take the opportunity to congratulate Wetlands International for this excellent piece of work.

Arnulf Müller-Helmbrecht
Executive Secretary of CMS

PREFACE

The White-headed Duck is the only stifftail (Oxyurini) indigenous to the Palearctic; it is restricted to a small area of Central Eurasia and North Africa and currently has the distinction of being "endangered". Over the last decade or so, there has been considerable interest in this species, particularly in Spain where the population underwent a considerable decline and has recently recovered. Populations have declined rapidly, especially in the Central Asian region and details of the life cycle and precise migratory habits of the species largely remain an enigma. In this arid region of Central Asia, the species appears to be adapted to living in a range of shallow, fresh, brackish to saline wetland types, many of which are transient in nature. This appears to force the birds to modify its habits and choice of wetlands in which to breed, moult, stop on migration and spend the northern winter. As the region undergoes an extended periodic drying cycle and is currently in the throes of an extended drought, the challenge of ensuring maintenance of wetlands in their natural condition, ensuring allocation to these wetlands of regular supplies of water as competition increases from human needs - domestic, industry and agriculture; the fate of the small population of White-headed Duck that migrate to Pakistan each winter in South Asia remains in question.

In its 2002-2005 Strategy, Wetlands International has identified the need to "enhance the conservation and management of waterbirds through the development and implementation of action plans". The Asia-Pacific Migratory Waterbird Conservation Strategy: 2001-2005 calls for the conservation of threatened species and the conservation of migratory waterbirds in the Central Asian Flyway.

The White-headed Duck has been selected as a species in need of special attention and with funds from the Convention on Conservation of Migratory Species of Wild Animals (CMS) it has been possible to undertake a rapid field assessment of the main wintering ground in northern Pakistan and a survey of published and unpublished information across the flyway.

The format of the report is based on that of the Species Review Reports developed by the CMS for Appendix I Species for Concerted Action and adopted by the Conference of Parties (Resolution 3.2). The report provides an introduction to the species, its distribution, basic ecology, population status, threats, conservation measures, recommendations and detailed national status overviews. A key to the scientific and English name of species of birds, plants, animals, fish and insects covered is available in Appendix C.

We have been able to access much of the available information on the White-headed Duck with the assistance of a great number of people. To collect information on the White-headed Duck in the Central Asian region, a questionnaire has been developed and distributed among the experts. Contact details for contributors are provided in Appendix D. Nevertheless there remains a lot of gaps in our knowledge of the biology and migration patterns of this species.

With the publication of this report, Wetlands International hopes to contribute to a greater awareness and understanding of this important and endangered species. Conservation efforts for this species will be pursued by CMS and the African Eurasian Migratory Waterbird Agreement and Wetlands International under our Joint Work Plan for 2003-2004.

This report will also integrate in a broader initiative of Wetlands International and CMS have underway for the development of an Action Plan for the conservation of migratory waterbirds and wetlands in the Central Asian Flyway.

We look forward to receiving feedback on the report and on conservation measures being undertaken to conserve this threatened species.

David Li Zuo Wei and Taej Mundkur
Wetlands International

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SUMMARY

The White-headed Duck *Oxyura leucocephala* is a globally threatened species classified as Endangered by the IUCN Red List of Threatened Species (IUCN 2000) and Threatened Birds of the World (BirdLife International 2000). The global population of the White-headed Duck was probably over 100,000 in the early twentieth century, but its numbers have fallen to an estimated 19,000 individuals in 1991. BirdLife International (2000) estimated a world population of 2,500-10,000 individuals. The South Asian wintering population (mainly in Pakistan) has decreased from 1,039 in 1968 to 733 in 1987 to around 10 individuals in 2001. This has caused a great concern among conservationists.

With funding from the Convention on Conservation of Migratory Species of Wild Animals (CMS), Wetlands International has undertaken a comprehensive review of the status of the White-headed Duck in the Central Asian countries during 2002 and has provided recommendations for the conservation of this species. This report focuses on the Central Asian region, and covers Afghanistan, China, India, Iran, Kazakhstan, Kyrgyz Republic, Mongolia, Pakistan, Russia (Asian part only), Tajikistan, Turkmenistan and Uzbekistan. This report will serve as an important reference for the development of an Action Plan for Migratory Waterbirds in the Central Asian Flyway, as well as for the development of waterbird and wetland conservation activities at the regional and national level.

Under this project, a field survey has been carried out in northern Pakistan to evaluate the current status of the White-headed Duck wintering population. However, only 5 birds were counted in January 2002.

A questionnaire has also been developed and distributed among waterbird experts in the Central Asian region to collect information on the White-headed Duck. According to the information received, the East Mediterranean/Turkey/Southwest Asia wintering population has been estimated at 5,000-10,000 birds and the South Asian wintering population is estimated at 10 birds as reported in *Waterbird Population Estimates* (Wetlands International 2002).

Major threats to the conservation of the White-headed Duck have been identified. The drought in Central Asian region over the last few years has greatly reduced wetland habitat for the White-headed Duck and many other waterbirds. The long-term effects of drought on the viability of the White-headed Duck population is unknown although potentially serious. Habitat loss and degradation due to unsustainable use of water resources has further reduced the available habitat for White-headed Duck. Human disturbance and hunting are also recorded as additional threats.

Six main recommendations have been proposed for conservation of the White-headed Duck in the Central Asian Region. These include:

- **All countries need to undertake a review of their national policy and legislation to ensure adequate legal protection for the White-headed Duck and its enforcement.**

  The study has revealed that this species is not recognised as a globally endangered species in need of protection in the national legislation of all the countries.

- **Sustainable management of water resources is needed to ensure adequate allocation of water to maintain viability of wetland habitats used by White-headed Duck.**

  This is the highest priority for the conservation of the threatened populations of White-headed Duck, and many other waterbird species in the Central Asian region. The Action Plan for Migratory Waterbirds in the Central Asian Flyway, is also expected to include measures to address water management and wetland conservation issues in Central Asian countries. The Action Plan should be endorsed by conservation authorities in each country and adequately resourced to ensure its implementation.

- **Site conservation measures, such as the establishment of an international network of sites of importance for migratory waterbirds, including the White-headed Duck, need to be pursued.**

  The site network should ensure the conservation of important wintering, migratory and breeding sites of this species. Restoration of previously important wetlands for migratory waterbird species should also be considered.

- **A flyway-wide project should be developed for conservation of the White-headed Duck and its wetland habitats through building and strengthening links between wetland managers and organisations involved in the conservation of the White-headed Duck across the region.**

  The project should include activities on site management, habitat restoration, species identification and monitoring, training, publication of information material, education and awareness raising.

- **A comprehensive population monitoring programme should be developed to monitor the distribution and the status of the White-headed Duck in the Central Asian region during the wintering, migratory and breeding seasons.**

  Information on the distribution and number of birds is still inadequate for many areas and countries. Therefore a comprehensive approach is required to monitor the status of the species.

- **Research to define the migration routes and population boundaries of the White-headed Duck is urgently required.**

  Satellite-tracking of selected individuals should be able to provide useful information on the main routes and staging areas (once satellite-tracking technology can be used for this species). This should be considered a priority. Migration studies through colour marking and banding (ringing) activities should also be considered, with the involvement of all countries.

In addition to these recommendations, a number of country specific recommendations have been made.

SUMMARY IN SPANISH (RESUMEN)

La malvasía cabeciblanca *Oxyura leucocephala* es una especie globalmente amenazada clasificada como En Peligro en la Lista Roja de Especies Amenazadas de la IUCN (IUCN 2000) y *Threatened Birds of the World* (BirdLife International 2000). La población mundial de la malvasía cabeciblanca probablemente superaba los 100,000 ejemplares a principios del siglo veinte, pero se estima que sus números han descendido a 19,000 individuos en 1991. BirdLife International (2000) estimó que la población mundial constaba de 2,500-10,000 individuos. La población invernante del sur de Asia (principalmente Pakistán) ha decrecido de 1,039 en 1968 a 733 en 1987 y a alrdedor de 10 individuos en 2001. Esto ha causado gran preocupación entre los conservacionistas.

Con fondos de la Convención para la conservación de las especies migratorias de animales silvestres (CMS), Wetlands International ha emprendido una extensa revisión del estado de la malvasía cabeciblanca en los países de Asia Central durante 2002 y ha proporcionado recomendaciones para la conservación de esta especie. Este informe se centra en la región de Asia Central y cubre Afganistán, China, India, Irán, Kazajistán, República de Kyrgyz, Mongolia, Pakistán, Rusia (sólo la parte asiática), Tajikistán, Turkmenistán y Uzbekistán. Este informe servirá como una importante referencia para el desarrollo del Plan de Acción para las Aves Acuáticas en la Ruta Migratoria de Asia Central, así como para el desarrollo de las actividades de conservación para aves acuáticas y humedales tanto a nivel regional como nacional.

Bajo este proyecto se ha llevado a cabo un seguimiento en el campo en el norte de Pakistán para evaluar el estado actual de la población invernante de la malvasía cabeciblanca. Sin embargo, sólo 5 aves se contabilizaron en enero de 2002.

También se ha preparado un cuestionario y se ha distribuido entre los expertos de Asia Central para recabar información sobre la malvasía cabeciblanca. De acuerdo a la información recibida, la población invernante del este del Mediterráneo/Turquía/suroeste de Asia se ha estimado en 5,000-10,000 aves, mientras que la población invernante del sur de Asia se ha estimado en 10 aves, tal y como se indica en *Waterbird Population Estimates* (Wetlands International 2002).

Las principales amenazas para la conservación de la malvasía cabeciblanca han sido identificadas. La sequía en Asia Central en los últimos años ha reducido enormemente la superficie de humedales para la malvasía cabeciblanca y para muchas otras aves acuáticas. Los efectos que a largo plazo pudiera tener la sequía sobre la viabilidad de la población de malvasía cabeciblanca son desconocidos, aunque potencialmente serios. La pérdida de hábitat debido al uso insostenible de los recursos hídricos ha contribuido aún más a reducir el hábitat disponible para la malvasía cabeciblanca. La caza y la presión humana se han identificado también como amenazas adicionales.

Seis recomendaciones se proponen para la conservación de la poblacion de malvasía cabeciblanca en Asia Central. Éstas incluyen:

- **Todos los países necesitan llevar a cabo una revisión de su normativa y lesgislación nacionales para asegurar una protección legal adecuada de la malvasía cabeciblanca y su cumplimiento.**

  El estudio ha revelado que esta especie no está reconocida como una especie globalmente amenazada con necesidad de protección en la legislación nacional de todos los países.

- **Se necesita un manejo sostenible de los recursos hídricos para asegurar un reparto del agua capaz de mantener la viabilidad de los humedales utilizados por la malvasía cabeciblanca.**

  Ésta es la prioridad principal para la conservación de las poblaciones amenazadas de malvasía cabeciblanca y otras muchas especies de aves acuáticas en Asia Central. También se espera que el Plan de Acción para las Aves Acuáticas en la Ruta Migratoria de Asia Central incluya medidas que traten el manejo del agua y las cuestiones sobre la conservación de humedales en los países de Asia

Central. El Plan de Acción debería ser aprobado por las autoridades de conservación de cada país y dotado de recursos adecuados para asegurar su implementación.

- **Se necesita implementar medidas de conservación para localidades importantes, tales como el establecimiento de una red internacional de localidades de importancia para la migración de aves acuáticas, incuyendo la malvasía cabeciblanca.**

  La red de localidades debería asegurar la conservación de localidades importantes de invernada, migración y reproducción para esta especie. La restauración de humedales previamente importantes debería también considerarse.

- **Debería desarrollarse un proyecto a escala de ruta migratoria para la conservación de la malvasía cabeciblanca y sus humedales mediante la construcción y el refuerzo de conexiones entre los directores de humedales y organizaciones implicadas en la conservación de la malvasía cabeciblanca por toda la región.**

  El proyecto debería incluir actividades de manejo de las localidades, restauración del hábitat, identificación y seguimiento de especies, formación, publicación de material informativo, toma de conciencia, y educación.

- **Debería desarrollarse un extenso programa de seguimiento de la población para estudiar la distribución y el estado de la malvasía cabeciblanca en Asia Central durante las temporadas de invernada, migración y cría.**

  Todavía es inadecuada en muchas áreas y países la información sobre la distribución y el número de aves. Por tanto, un enfoque amplio es necesario para realizar un seguimiento del estado de la especie.

- **Se requiere urgentemente definir las rutas migratorias y las fronteras entre poblaciones de la malvasía cabeciblanca.**

  El seguimiento por satélite de determinados individuos debería poder proporcionar información útil sobre las rutas principales y áreas de paso migratorio (siempre y cuando la tecnología de seguimiento por satélite pueda ser utilizada para esta especie). Esto debería ser considerado una prioridad. También deberían tenerse en cuenta para su implementación estudios sobre la migración mediante marcas y anillas de colores, con la participación de todos los países.

De manera adicional a estas recomendaciones, se han realizado un número de ellas específicas para cada país.

SUMMARY IN FRENCH (RESUME)

L'erismature à tête blanche est une espèce considérée comme globalement menacée selon la liste préparée par l'UICN (« The IUCN Red List of Threatened Species », IUCN 2000), et celle de BirdLife International (« Threatened Birds of the World », BirdLife International 2000). Au début du vingtième siècle, la population mondiale de l'érismature à tête blanche était probablement supérieure à 100.000 individus, mais ces chiffres ont baissé jusqu'à atteindre 19.000 oiseaux en 1991. Récemment, BirdLife International (2000) a estimé que la population mondiale est comprise entre 2500 et 10.000 oiseaux. La population hivernante sud-asiatique (surtout concentrée au Pakistan) s'est réduite de 1039 oiseaux en 1968, à 733 en 1987, et à une dizaine d'oiseaux en 2001, ce qui inquiète fortement le monde de la conservation.

Avec l'aide financière de la Convention de Bonn (Convention pour la conservation des espèces animales migratrices), Wetlands International a entrepris en 2002 une revue complète du statut de l'érismature à tête blanche dans les pays d'Asie centrale, et a présenté des recommandations pour la conservation de cette espèce. Ce rapport se concentre sur l'Asie centrale, et englobe l'Afghanistan, la Chine, l'Inde, l'Iran, le Kazakhstan, la République Kirghize, la Mongolie, le Pakistan, la Russie (partie asiatique), le Tadjikistan, le Turkménistan et l'Ouzbékistan. Ce rapport servira de point de référence important pour le développement d'un plan d'action pour les oiseaux d'eau migrateurs de la voie de migration d'Asie centrale (« *Central Asian flyway* »), et pour le développement d'actions de conservation des oiseaux d'eau et des zones humides aux niveaux national et régional.

Sous l'égide de ce projet, une enquête de terrain a été menée au nord du Pakistan pour évaluer le statut actuel de l'érismature à tête blanche. On n'a recensé que 5 oiseaux en janvier 2002.

Un questionnaire a été développé en direction des experts d'Asie centrale, pour recueillir des renseignements sur l'érismature à tête blanche. Selon l'information reçue, la population hivernante de Méditerranée orientale, de Turquie et du Sud-Ouest de l'Asie a été estimée entre 5000 et 10.000 oiseaux, et celle d'Asie du sud à 10 individus (selon les chiffres rapportés dans "Waterbird Population Estimates", Wetlands International 2002).

Les menaces les plus importantes pour la conservation de l'érismature à tête blanche ont été identifiées. La sécheresse en Asie Centrale au cours des dernières années a largement réduit l'étendue des zones humides, habitat de l'érismature à tête blanche et d'autres oiseaux d'eau. Les effets à long terme de la sécheresse sur l'espèce ne sont pas connus, mais sont potentiellement graves. La perte des habitats à cause de la surexploitation des ressources en eau a réduit encore davantage l'habitat disponible. Enfin, le dérangement par l'homme et la chasse constituent aussi des menaces.

Six recommandations principales ont été proposées pour la conservation de la population d'érismature à tête blanche d'Asie Centrale :

- **Tous les pays doivent réviser leurs politiques et législations nationales pour assurer la protection juridique de l'érismature à tête blanche, et mettre en oeuvre ces législations.**

  L'étude a révélé que cette espèce n'est pas encore reconnue comme globalement menacée par la législation nationale de tous les pays concernés.

- **Une gestion durable des ressources en eau est nécessaire pour assurer une allocation d'eau suffisante au maintien des zones humides utilisées par l'érismature à tête blanche.**

  Ceci constitue la plus grande priorité pour la conservation de l'érismature à tête blanche et de nombreuses autres espèces d'oiseaux d'eau d'Asie Centrale. Le plan d'action pour les oiseaux d'eau de la voie de migration de l'Asie Centrale prévoit d'inclure des mesures sur la gestion de l'eau et la conservation des zones humides dans les pays d'Asie centrale. Le plan d'action doit être approuvé par

les autorités environnementales de chaque pays, et être doté de moyens suffisants pour assurer son exécution.

- **Des mesures pour la conservation des sites doivent être visées, telles que l'établissement d'un réseau international des sites d'importance pour les oiseaux d'eau migrateurs, érismature à tête blanche compris.**

  Le réseau des sites doit assurer la conservation des sites d'hivernage, de migration et de nidification de cette espèce. La restauration des zones humides qui ont été importantes pour les oiseaux d'eau dans le passé doit être envisagée.

- **Un projet de conservation de l'érismature à tête blanche et des zones humides doit être mis en place tout au long de sa voie de migration, en créant et en renforcant les liens entre les gestionnaires de sites et les organisations travaillant à la conservation de l'erismature à tête blanche dans la région**.

  Ce projet doit comprendre des activités de gestion de sites, de restauration des habitats, d'identification et de suivi des espèces, de formation, de sensibilisation et d'éducation du public, et de publication.
- **Un programme de suivi complet des populations doit être développé pour étudier la distribution et le statut de l'érismature à tête blanche en Asie centrale pendant l'hivernage, la migration et la nidification**.

  Les données sur la distribution et les effectifs des oiseaux d'eau sont encore insuffisantes dans plusieurs territoires et pays. Il faut donc développer une méthodologie complète pour le suivi du statut de cette espèce.

- **Des recherches doivent être lancées sans délai pour définir les routes de migration et la distribution des populations d'érismature à tête blanche.**

  La télémétrie par satellite de quelques individus devrait fournir des renseignements utiles sur les principales routes de migration et les quartiers de stationnement, lorsque la technique pourra être utilisée sur cette espèce. Ceci doit être considéré comme une priorité. De plus, l'étude de la migration à l'aide de baguage et de marquages de couleur doit être mise en oeuvre, avec la participation de tous les pays.

En outre, un certain nombre de recommandations ont été faites pour des pays particuliers.

1. INTRODUCTION

1.1 Background

The White-headed Duck *Oxyura leucocephala* is a globally threatened species classified as Endangered by the *IUCN Red List of Threatened Species* (IUCN 2000) and *Threatened Birds of the World* (BirdLife International 2000). Its range and population size has decreased drastically since the 1900s, owing to habitat destruction and hunting pressure (Green and Hughes 2001). The global population of the White-headed Duck was probably over 100,000 in the early twentieth century, falling to an estimated 19,000 birds in 1991, and since then its numbers have probably declined to fewer than 10,000 individuals (Green and Hunter 1996). BirdLife International (2000) estimated the world population as 2,500-10,000 birds. In Pakistan, where a small population regularly winters, numbers have dropped from 1,039 in 1968, to 733 in 1987, to less than 10 in January 2002 (Chaudhry 2002). This has caused great concern among conservationists.

To promote the conservation of this species, an "*Action Plan for the White-headed Duck (Oxyura leucocephala) in Europe"* (Green and Hughes 1996) has been prepared by BirdLife International on behalf of the European Commission. The Action Plan covers Algeria, Azerbaijan, Bulgaria, Greece, Israel, Romania, Russian Federation, Spain, Tunisia, Turkey and Ukraine. In addition, it is implemented in the following range-states of the introduced Ruddy Duck *O. jamaicensis*: Austria, Belgium, Denmark, Finland, France, Germany, Hungary, Iceland, Ireland, Italy, Morocco, Norway, Netherlands, Portugal, Sweden, Switzerland and United Kingdom. However, the Action Plan did not include the countries in Central Asia, which hold the main White-headed Duck breeding population.

The White-headed Duck is one of the few migratory Anatidae species that is Endangered in this region. It should also be seen as a flagship species for the Action Plan for conservation of migratory waterbirds and wetlands in the Central Asian flyway, which is currently being prepared by Wetlands International with CMS and others.

This report aims to review the status of the White-headed Duck in the Central Asian region (herein after defined as the following countries: Afghanistan, China, India, Islamic Republic of Iran, Kazakhstan, Kyrgyz Republic, Mongolia, Pakistan, Russia (Asian part only), Tajikistan, Turkmenistan and Uzbekistan) and to provide comments and recommendations to protect the species and its habitats. This report should also provide valuable input to the development of an Action Plan for the migratory waterbirds in the Central Asian Flyway, as well as for developing waterbird and wetland conservation activities at the regional and national levels.

The report does not cover Saudi Arabia and Iraq. In Saudi Arabia, there is only a single record in 1983 (Evans 1994). Information on the status of the species in Iraq is difficult to access. The species is known to have occurred in the wetlands of Lower Mesopotamia (Scott 1995), although with the drainage of the marshes and widespread hunting and trapping of ducks (Al-Robaae and Salem 1996), it is unlikely that the species continues to visit the area in any significant number.

1.2 Common names

The White-headed Duck, also goes by other English (common) names – such as White-headed Stifftail, White-headed Stiff-tailed Duck, Stiff-tailed Duck, Spiny-tailed Duck, Ural Duck and Spanish Duck.

1.3 Taxonomy

Anas leucocephala Scopoli, 1769, no locality, but probably northern Italy. Type specimen in Turin Museum. Monotypic, although Amat and Sánchez (1982) reported differences in plumage coloration and bill dimensions between skins from western Mediterranean (Spain, Tunisia and Algeria) and from populations further east. Amat and Sánchez (1982) found western birds had larger bills on average. Two colour phases (pale and dark) now occur in Spain, possibly associated with a bottleneck suffered by the

tiny remaining population in the 1970s (Urdiales and Pereira 1993, Torres and Moreno-Arroyo 2000). Considered by some to form superspecies with Ruddy Duck *O. jamaicensis* (of North America), sometimes including other species, but probably more closely linked to the Maccoa Duck *O. maccoa* (of Africa); its relationship between the *Oxyura* species is uncertain (del Hoyo *et al.* 1992). However, DNA fingerprinting has now clarified the relationships (McCracken *et al.* 1999). Within *Oxyura*, Old World species (*Oxyura leucocephala*, *Oxyura maccoa*, and *Oxyura australis*) appear to form a clade, with New world species (*Oxyura jamaicensis*, *Oxyura vittata*) branching basally. Hybridisation with *O. jamaicensis* in the wild, producing fertile progeny, has occurred in Spain, where birds from the introduced English population have arrived.

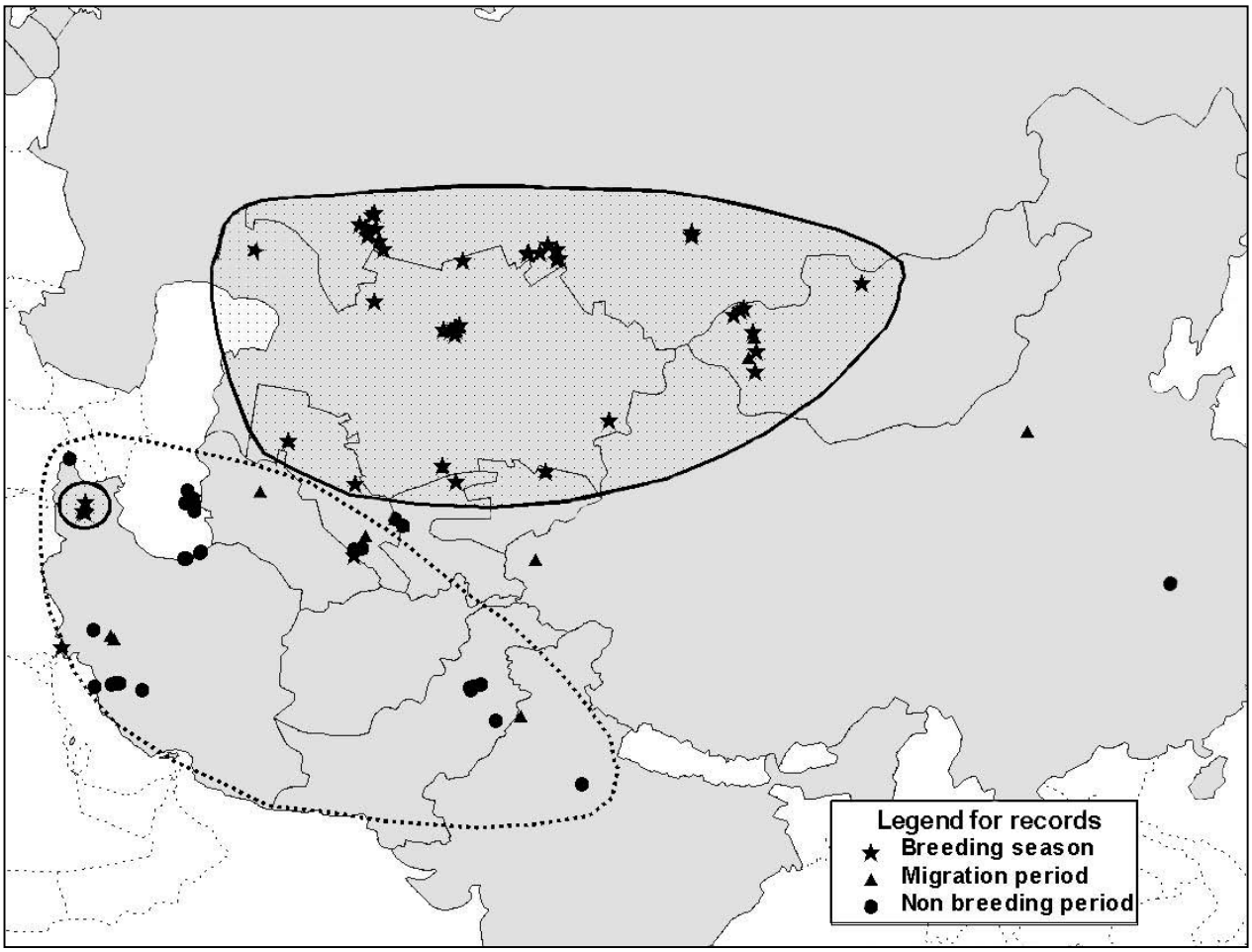
2. SPECIES DISTRIBUTION

The White-headed Duck regularly occurs in Algeria, Azerbaijan, Bulgaria, Greece, Kazakhstan, Iran, Israel, Mongolia, Morocco, Pakistan, Romania, Russia, Spain, Syria, Tunisia, Turkmenistan, Turkey and Uzbekistan. It has also been occasionally recorded in Afghanistan, Albania, Armenia, China, France, Georgia, Hungary, India, Iraq, Italy, Kyrgyz Republic, Saudi Arabia, Ukraine and Yugoslavia. However, accidental populations have also been found in Austria, Belgium, Cyprus, Germany, Jordan, Libya, Portugal, Malta, Netherlands, Poland and Switzerland. Historically, the species was also found in Egypt and Tajikistan (Green and Anstey 1992, Green and Hughes 1996, 2001).

Within the Western Palearctic, there has been a drastic historical decline in range. Former breeding populations have become extinct in Italy, France, Hungary, Albania, Yugoslavia, Greece, Israel and Egypt, and probably also in the Ukraine and Armenia (Green and Anstey 1992, Green and Hughes 1996).

This report focuses on Asian countries that are not covered by the Action Plan of the European population by Green and Hughes (1996), including Afghanistan, China, India, Iran, Kazakhstan, Kyrgyz Republic, Mongolia, Pakistan, Russia (Asian part only), Tajikistan, Turkmenistan and Uzbekistan (see Map 1).

Map 1: Distribution of the White-headed Duck in the Central Asian countries in 1980-2002.



3. ECOLOGY

The White-headed Duck is adapted to live in a fairly dry climatic zone and uses a range of shallow, fresh, brackish to saline wetland types, many of which are transient in nature. This appears to force the birds to modify its habits and choice of wetlands in which to breed, moult, rest on migration and spend the northern winter. The species tends to prefer small wetlands at which to breed but in uses small and large wetlands during the winter. The species has been well studied in Europe. Information on habitat selection, food, breeding and migration habits summarised below is extracted primarily from BirdLife International (2001) and Green and Hughes (2001), unless otherwise stated.

3.1 Habitat

The White-headed Duck prefers freshwater or brackish, alkaline, eutrophic lakes, which often have a closed basin hydrology and are frequently semi-permanent or temporary. Breeding sites have dense emergent vegetation around the fringes and are small or enclosed areas within a larger wetland system. They typically have extensive area of 0.5-3 m depth. Wintering flocks often occur in saline inland lakes (Green and Hughes 2001). In Pakistan, the duck prefers to occupy wetlands with a fairly high pH of 7.5-10 (Chaudhry 2002). In winter, the birds congregate on relatively large, shallow, brackish to saline wetlands, usually with considerable areas of open water devoid of any emergent vegetation. Many of these wetlands are temporary or semi-permanent, leading to fluctuations in distribution and population size of the birds in response to climatic variations, notably rainfall and water abstraction for human needs.

3.2 Food

The White-headed Duck feeds almost entirely by diving, mainly at night. However, researchers have also found that this species feeds during daytime in Pakistan (Zulfiqar Ali, pers. comm., August 2002). Benthic Chironomidae larvae are a major component of the diet, both for adults and young (Sánchez *et al*. 2000). They feed on submerged plant material and seeds, especially Straight Vallis *Vallisneria spiralis* and the sedge *Cyperus eleusinoides*, both found in abundance in lakes in northern Pakistan (Roberts 1991). A specimen taken in Pakistan had eaten "purely …vegetable matter" (Whitehead 1931), and the seeds of Yellow Sweetclover *Melilotus indicus* and Ruppia *Ruppia rostellata* were identified in the crop of another bird (Savage 1965). Female ducks examined in central Kazakhstan, in July, were found to contain seeds of Pond Weed *Potamogeton* and Naiad *Najas*, and insects – Water Boatmen *Corixa* and *Micronecta*. Young birds examined at the same time were found to contain only insects (Dolgushin 1960).

3.3 Breeding

Details of the breeding biology of the White-headed Duck is well covered by Green and Hughes (2001), based largely on work in Europe. Reviews of the breeding biology of the species in Kazakhstan and south-central Siberia are provided by Dolgushin (1960) and Gordienko *et al.* (1986). These observations indicate that data on Central Asian birds is more incomplete and the information is provided below.

In Russia, eggs are laid from late April to early July (Dementiev and Gladkov 1952). Sparse data from Tuva suggests that breeding at Ubsu Nur takes place in June and July: fresh and only slightly incubated eggs (albeit in nests of Common Pochard *Aythya ferina*) were recorded in mid-June, when two males with well developed gonads were shot nearby. A female was also captured "in the breeding season" (8 July) at another lake (Baranov 1991). In Uzbekistan, breeding birds were observed in July on the Sudochye Wetland when females were recorded - with downy covered and partially feathered ducklings (Kreuzberg-Mukhina, in press; Lanovenko *et al*., in press).

3.4 Migration

Due to the lack of sufficient banding/ringing information, the exact migration routes of the White-headed Duck are unclear. Scott and Rose (1996) suggested the Central Asian population breeding in north Kazakhstan and southern Russian winter in Western Asia, the Middle East and Eastern Europe as far west

as Greece. Further, they suggested that South Asian wintering population to breed in southern Russia (Novosibirsk Oblast). While Green and Hughes (2001) stated that a small and declining east Asian population breed in southern Russia and Mongolia and winter in Pakistan.

In Pakistan, the birds arrive on the lakes in October and leave by the end of March (Chaudhry 2002). In the Central Asian breeding grounds, White-headed Ducks are one of the last waterbird species to arrive, having been observed in passage between late April and early May, and in breeding sites from mid-May (Dementiev and Gladkov 1952, Gordienko *et al.* 1986). The main northward (spring) passage in Kazakhstan occurs from 29 April to 5 May, and by mid-May, the movement is complete even for the west Siberian breeders (Dementiev and Gladkov 1952, Johansen 1959). Birds arrive on the Russian breeding grounds already paired (Dementiev and Gladkov 1952). They leave in late August (Gordienko *et al.* 1986); southward (autumn) departure begins in late September and northern breeding areas are deserted by mid-October. Concentrations on the east Caspian Sea grow during the second half of October and November. In Uzbekistan, the major southward passage through the Amu Darya Delta occurs in October (Kreuzberg-Mukhina and Lanovenko 2000).

4. POPULATION STATUS

The world population of the White-headed Duck has declined markedly since the 1930s from about 100,000 to less than 20,000 individuals in early 1990 (Green and Hunter 1996). BirdLife International (2000) estimates the world population at 2,500-10,000 individuals.

Although divisions between biogeographical populations are poorly understood, Rose and Scott (1997) differentiate the White-headed Duck into four discrete populations based on the breeding and wintering ranges: West Mediterranean (700, resident in Spain), Algeria/Tunisia (400, resident), East Mediterranean/Turkey/Southwest Asia (8,000-15,000, mainly wintering in Greece, Bulgaria, Romania, Turkey, Azerbaijan, Israel, Iran, Turkmenistan, Afghanistan and Uzbekistan) and a South Asian population (300, mainly wintering in Pakistan).

Details on trends and current status of the four biogeographic populations are outlined in the following section. This information provides a basis and an understanding of the population changes of the species across its range.

4.1 Winter population

South Asian population
The South Asian wintering population (mainly in Pakistan) has rapidly decreased since the 1960s. The peak count in Pakistan declined from 1,039 birds in 1968 to 733 individuals in January 1987. In 1994, 148 White-headed Ducks were counted, however, the species further declined sharply to about 10 birds in 2001 and 2002 (Chaudhry 2002; Rahat Jabeen and Zulfiqar Ali, pers. comm., May 2002). In India, the species is now rarely recorded and the latest record is of a single individual in January 1997 in Uttar Pradesh (M. Zafar-ul Islam, pers. comm., May 2002).

East Mediterranean/Turkey/Southwest Asia population
The January population in Iran and Turkmenistan varies every year with peak total count of 1,300-1,500 birds. In Iran, 591 birds were counted in January 2002 (Hamid Amini, Sadegh Sadeghi Zadegan and Yavar Shahbazi, pers. comm., May 2002). In Turkmenistan, 820 were counted in January 1998, 476 in January 2001 and 723 in January 2002 (V. I. Vasilyev and Myrrhy E. Gauser, pers. comm., May 2002).

In Uzbekistan, in January 2001, an unexpected high count of 1,137 birds was recorded at Dengizkul Lake, southern Uzbekistan for the first time with only 14 birds counted in January 2002 at Dengizkul Lake, Aydar Lake and Deukhona Lake. The low number is presumed to be due to the main wetlands being affected by drought and water abstraction for agriculture (Kreuzberg-Mukhina *et al*. 2001 and pers. comm., May 2002).

Evgeniya Lanovenko (pers. comm., October 2002) suggests that the lower count in January 2002 may also be due to the survey being incomplete.

The numbers of birds in Turkey and Azerbaijan have fallen consistently over the past ten years. In Turkey, from 10,927 birds in January 1991, numbers have fallen to 2,575 birds in January 1999, to about 1,000 birds during January 2000 to 2002 (Bahtiyar Kurt, pers. comm., July 2002). In Azerbaijan, from 3,520 birds in January 1991 to 1,100 birds in January 1998 and 334 in January 2000. However, there has been no survey of all the important wetlands for the White-headed Duck in Azerbaijan. Due to lack of funding, counts were not conducted during some years. Therefore, even a maximal figure is thought to be an underestimate (Elchin H. Sultan, pers. comm., July 2002).

However, in eastern Mediterranean, numbers have apparently increased: 2,213 and 1,472 birds were recorded in Greece in January 1997 and 2000, respectively (Panayotopoulou and Green 2000); 1,970 birds were recorded in Bulgaria in December 2000 (Profirov and Dimitrov 2001); and 520 birds were recorded

in Romania in November 1999 (Munteanu 2000). This could suggest that the main wintering grounds of the White-headed Duck is shifting westwards.

In the last five years (January of 1998 to 2002), the total number of the wintering White-headed Duck in the East Mediterranean/Turkey/Southwest Asia region was 3,260 to 4,852 (see Table 1). Due to a lack of information during some years, the data may represent an incomplete picture of the wintering population in this region. However, if we assume that the highest count of 4,852 birds (January 2000) is a minimum estimate for this species, the East Mediterranean/Turkey/Southwest Asia would number around 5,000-10,000 birds.

Table 1: Winter counts of White-headed Duck, 1990-2002.

Country	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
South Asian population													
India								1	0	0	0	0	0
Pakistan	76	64	146	145	148	51	32	52	56	36	23	10	10
East Mediterranean, Turkey, Southwest Asia population													
Afghanistan	-	-	-	-	-	-	-	-	-	-	-	-	-
Iran	0	19	20	82	482	1,485	13	356	-	26	-	4	591
Turkmenistan	0	223	-	3	-	-	-	-	820	7	287	476	723
Uzbekistan								-	-	-	1,137	-	14
Albania	-	-	-	-	-	4		0	0	0	0	0	-
Azerbaijan	-	3,520	-	-	-	1	136	210	1,100		334		
Bulgaria	-	8	81	186	34	-	76	0	175	634	-	1,970	554
Greece	423	170	54	5+	349	900	632	2,213	689	261	1,472		
Georgia									2				
Israel	410	191	256	140	19	75	1	127	72	62	102	274	-
Romania	18	5	3	4	75	17	9	12	284	350	520		-
Syria	-	-	-	30	35	140							
Turkey	7,526	10,927	4,478	3,576	3,428	2,970	1,300	-	1,002	2,575	1,000	989	1,378
Yugoslavia	-	-	-	6	-	6		0	0	0	-	-	-
West Mediterranean population													
Spain	420	-	786	447	558	556	537	746	908	1,453	2,396	2,678	2,269
Morocco													12
North African population													
Algeria	13	-	210	86	17	53	2	3	186	348	-	-	-
Tunisia	28	-	50	29	63	103	131	368	297	14	572	496	406

Sources: Anon. 1997a, Azafzaf 2001, Criado 1997, Delany *et al*. 1999, Dimitrov *et al.* 2000, Eken 1998a and 1998b, Gilissen 2002, Green and Anstey 1992, Green and Hunter 1996, Green and Yarar 1996, Handrinos 1995, Handrinos 1998, Lanovenko and Kreuzberg-Mukhina 2000, Lopez and Mundkur 1997, Mundkur and Taylor 1993, Munteanu 1995, Munteanu 2000, Panayotopoulou and Green 2000, Perennou *et al.* 1990, Rose 1992, Perennou and Mundkur 1991, Perennou and Mundkur 1992, Perennou *et al*. 1994, Poslavski 1992, Profirov and Dimitrov 2001, Rose and Taylor 1993, Rose 1995, Scott and Rose 1989, Scott and Rose 1996, Sultanov 2001, Torres 2000, van der Ven 1987, van der Ven 1988.

Information contributed by: Abdul Aleem Chaudhry (Pakistan), Alex Filatov (Uzbekistan), Andy Green (overall range), Bahtiyar Kurt (Turkey), Baz Hughes (overall range), Behrouz Behrouzi-Rad (Iran), Elena Kreuzberg-Mukhina (Uzbekistan), Evgeniya Lanovenko (Uzbekistan), Gradimir Gradev (Bulgaria), Hamid Amini (Iran), Hichem Azafzaf (Tunisia), José Torres (Spain), M. Zafar-ul Islam (India), Myrrhy Gauser (Turkmenistan), Paul Isenmann (Tunisia and Algeria), Rahat Jabeen (Pakistan), Sadegh Sadeghi Zadegan (Iran), Vladislav Vasilyev (Turkmenistan), Yavar Shahbazi (Iran), Zulfiqar Ali (Pakistan), International Waterbird Census (IWC) and Asian Waterbird Census (AWC) results 1987-2002.

Note: The counts are mainly made in January. In some countries where coverage is poor, data from November-December of the previous year and February have been included.

West Mediterranean population
The Spanish population has increased significantly in the last 20 years: from 22 birds in 1977 to 4,500 in September 2000. However, there has been a subsequent drop in numbers to 2,678 in January 2001; and 2,269 in January 2002. White-headed Ducks have also been recorded in Morocco since 1997, with a current population estimate of around 12 individuals (Torres Esquivias and Andy Green, pers. comm., June 2002).

The West Mediterranean population is now estimated at 2,500 birds (Wetlands International 2002).

North African population
In Tunisia, the January 2000-2002 counts have been 572, 496 and 406 birds respectively (Hichem Azafzaf, pers. comm., July 2002). Wintering data for Algeria is available for January 1999 with 348 birds counted (Data from the International Waterbird Census). At present, the total population in both countries is estimated at 400-600 birds (Wetlands International 2002).

4.2 Breeding population

In Asia, the main breeding sites of the White-headed Duck are in Kazakhstan, southern Russia, Uzbekistan and western Mongolia, while they are rare in west China. There are also small breeding populations in Iran and Turkmenistan. This section provides an overview of the current knowledge of the breeding populations in each country for which recent information is available.

China
The White-headed Duck is a very rare species in China. Breeding birds have been recorded in the Junggar Basin and Tian Shan Mountain in western Xinjiang Autonomous Region (Cheng Tso-hsin 1987). The current status is unclear due to lack of information (Ma Ming, pers. comm., May 2002).

Mongolia
In Mongolia, 32 birds were recorded during the breeding season in 1995, 12 in 1996, 2 in 1998, "a large colony" in 2000 and 5 in 2001. Post-breeding concentrations of 238 birds were recorded at Khar Us Lake in September 1998 and 40 in August 2001. Tseveenmyadag N. (pers. comm., April 2002) estimated 500-1,000 White-headed Ducks in Mongolia, mainly in following areas:

- 100 pairs in the Tes River Delta, east of Uvs Lake,
- 5-10 pairs at Shuvuun Tsuglaan Lake, west of Uvs Lake,
- 10-20 pairs in the Zost lakes, west Airag Lake,
- 100-150 pairs in the region of Khar Us Lake, Chono-kharaikh, Khoit Dalai (Northern Sea), Island of White River (Tsagaan Gol), and
- a single record of 5 individuals in central Mongolia.

Batdelger Dashnamjilyn (pers. comm., May 2002) believes that the number of White-headed Duck in Mongolia is increasing, and the population is 150-200 individuals. However, recent counts suggest that the Mongolian breeding population could be around 250 pairs.

Russia
Estimates of the current national breeding population of the White-headed Duck in Russia vary considerably. Linkov (2001) estimated it to be 170-230 pairs, whereas Sergey Bukreev (pers. comm., October 2002) suggests a minimum of 300-500 pairs.

In the Asian part of Russia, the current distribution of breeding pairs is:

- Baraba forest-steppe and Kulunda steppe, 30-40 pairs in 2002 (A.K.Yurlov, pers. comm., June 2002);
- Tobol-Ishim forest steppe, and Chelabinsk Region – a few pairs (Linkov 2001). Krivenko (1999) estimated that there were 5-50 pairs in this region whilst Gordienko Nadejda Sergeevna (pers. comm., May 2002) suggested a total of 30 pairs in the southern Ural region in the 1990s;
- Tyumen region: 20-30 pairs (Linkov 2001); and
- Khakassia and Tuva: 40-50 pairs (Linkov 2001).

In the European part of Russia, the current distribution of breeding pairs is:

- Krivenko (2000) estimated 17-20 pairs on the Lakes of the Sarpa lowland near Volgograd City. Bukreev and Chernobay (2002) believe there are 75-100 pairs during 1999-2001; and
- Adzhi Lake in Dagestan, 8-11 pairs in 2001 (Dzhamirzoev 2002).

Kazakhstan

In Kazakhstan, breeding was recorded at the Presnovskiy and Mibalykskiy Lakes and Naurzumskiy Lakes in northern Kazakhstan in the 1980s. Gordienko (1986) estimated 300 pairs in north Kazakhstan and southwest Siberia (Russia). The latest count was of 3 birds in June 2001 in the Naurzumskiy Lakes Region (Goetz Eichhorn, pers. comm., August 2002).

The Tengiz-Korgalzhyn Lakes Region is the most important breeding area for White-headed Duck. During the breeding season, 119 birds were recorded in May 1999 and 860 birds in end of July to early August 1999. In May 2000, a few hundred pairs were recorded in this area, while 270 birds were counted during end of July to early August 2000. In June 2001, 166 birds were counted in this area while 308 birds were present in July 2001 (Lachmann *et al*., in preparation). The latest count is of 72 birds in July 2002 by Holger Schielzeth (pers. comm., October 2002).

The Kamysh-Samara Lakes in the north Caspian region was an important area for breeding and spring migration in the 1970-1980s. During the breeding season in 1986, 105 birds were recorded (Morozov and Shevchenko, 1998). However, recent breeding records in this area are not available although birds are observed each summer. Also, around the Ural Delta the birds are now observed each summer but no breeding has been recorded.

In northwest Kazakhstan, the birds are now known to breed although the population is not known (Sergey Yerokhov, pers. comm., October 2002).

In the south and southeastern Kazakhstan, this species has been recorded at the Sorbulak Lake (6 birds on 1 May 2001), Kyzylkol Lake (20 birds on 28 May 2001), lakes of Kaldykol and Biyikkol (2 males on 30-31 May 2001) (Belyalov *et al.* 2002).

In eastern Kazakhstan at Alakol Lake, since it was last recorded during the breeding season in the 1970s (Sergey Yerokhov, pers. comm., October 2002), 6 birds were recorded in September 1998 (Cresswell *et al.*1999) but it is not known if the birds bred here.

However, it is still not possible to estimate the overall national population and trends with the current available information (Andrew Grieve, pers. comm., May 2002). Conservative estimates for the minimum breeding population of Kazakhstan could be at least 300-500 pairs, although this figure is probably an underestimate of the true population.

Uzbekistan

In western Uzbekistan, Akushpa Lake of the Sudochye Wetlands is an important breeding area for White-headed Duck. A total of 2,835 birds, including ducklings and broods, were counted in this area in July 2000 and 1,149 in July 2001. Evgenia Lanovenko (pers. comm., Sept. 2002) suggested 500 pairs bred in 2000, followed by absence of breeding in 2001 since no broods were found. Elena Kreuzberg-Mukhina (pers. comm., September 2002) believes that in the years of ecological stress such as drought, the birds gather in big groups at the Sudochye Wetlands and only some of the birds breed. However, the population in this region fluctuates markedly depending on the level of rainfall. In the summer of 2002, no White-headed Duck were recorded, presumably owing to the degradation of the lake as a result of drought during the previous two years (Elena Kreuzberg-Mukhina, pers. comm., May 2002).

Turkmenistan

Breeding has been formerly recorded along the middle Amu Darya River at Soltantagt Lake in eastern Turkmenistan during 1984-1991, where 5-6 broods were seen in May 1987 and 19 breeding pairs were recorded in 1989 (Poslavski 1992, Green 1992). On the western side of the country, M. E. Gauzer (pers. comm., May 2002) has recorded a pair of White-headed Duck nesting at the Krasnovodsky Bay of the Caspian Sea during 21-22 May 1982 and observed 8 birds in the area in April 2002.

Iran

The distribution of breeding birds in Iran has changed over time. Behrouzi-Rad (1996) reported that the birds bred in the wetlands of Gorigol, Parishad Lake and Gobi in the 1970s and in the 1980s in Haftbarm, Gorigol, Chogakhor and Gandoman, with a total breeding population of less than 50 pairs (Anstey 1989). The small breeding population in east Azerbaijan has been regularly observed during the breeding seasons of 1996 to 2001. Up to 241 birds have been recorded during the breeding seasons in 1998 and 170 in 2001 (data received from the Department of Environment, Iran, April 2002), however the number of pairs that bred is not known.

Table 2: Summer counts of White-headed Duck, 1990-2002.

Country	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
China													
Mongolia						31	12		2+238 in Sept		Large colony	5+40 in Aug	
Russia								1	10		8	20	
Kazakhstan									24	595	105+A few hundred pairs	505	72
Uzbekistan											2,835	1,149	0
Turkmenistan													8
Iran							54	67	241	125	83	170	
Turkey	30-35	105				342	300-400	62	"Quite a few pairs"+50				
Spain		391	487	697	579	667	932	1,087	1,460	2,396	4,489	2,269	2,619
Morocco								1			24		
Algeria		145	110										
Tunisia	19			43	33	2					14	94	344

Sources: Anon. 1997b, Buckley *et al.* 1998, Green and Hughes 2001, Heinicke 2001, Kirwan 1995, Kreuzberg-Mukhina *et al*. 2001, Morozov and Shevchenko 1998, Munteanu 1995, Shahbazi 2000, Torres 2001.

Information contributed by: Axel Braunlich (Mongolia), Alex Filatov (Uzbekistan), Andrew Grieve (Kazakhstan), Andy Green (overall range), Bahtiyar Kurt (Turkey), Baz Hughes (overall range), Batdelger Dashnamjilyn (Mongolia), Behrouz Behrouzi-Rad (Iran), Elena Kreuzberg-Mukhina (Uzbekistan), Evgeniya Lanovenko (Uzbekistan), Goetz Eichhorn (Kazakhstan), Gordienko Nadejda Sergeevna (Russia), Hamid Amini (Iran), He Fenqi (China), Hichem Azafzaf (Tunisia), Joerg Ratayczak (Kazakhstan), José Torres (Spain), Lars Lachmann (Kazakhstan), Ma Ming (China), Myrrhy Gauser (Turkmenistan), N. Tseveenmyadag (Mongolia), Paul Isenmann (Tunisia and Algeria), S. Gombobaatar (Mongolia), Sadegh Sadeghi Zadegan (Iran), Thomas Heinicke (Kazakhstan), Vladislav Vasilyev (Turkmenistan), Yavar Shahbazi (Iran).

Note: The counts are mainly made in June-July. In some countries, counts from May and August are included. The Spain data are mainly from September.

4.3 Post-breeding population

In Kazakhstan, large numbers have been recorded during southward migration at the Tengiz-Korgalzhyn Lakes Region. A maximum count of 1,918 birds was counted at the end of August and 1,420 birds in September of 1999. In September 2000, 3,700 birds were counted in this area. In August 2001, a maximum count of 1,708 birds was recorded. Beside the Tengiz-Korgalzhyn Lakes Region, 2,838 birds were counted at Kyzylkol Lake, in southern Kazakhstan in September 2001 at a time when simultaneously at least 1,100 White-headed Duck were still present in the Tengiz-Korgalzhyn Region. The latest count in the Tengiz-Korgalzhyn Region is 4,021 birds in September 2002 with two important sites uncounted (Lachmann *et al*., in preparation; Andrew Grieve, pers. comm., May 2002) and in the same month aound 2,000 birds were counted in the Kyzylkol Lake by Andrei Gavrilov (Joost van der Ven, pers. comm., November 2002). These records suggest that Kazakhstan would host at least 5,000 birds in September.

The difference between this number and the breeding population estimate of 300-500 pairs may be explained either by an underestimate of the breeding population, or by the fact that breeding birds from Mongolia and Russia may pass through Kazakhstan, after breeding, or a combination of the two.

Big flocks of White-headed Duck have also been recorded in autumn in Uzbekistan. In October 1999, more than 3,000 birds were counted at Akushpa Lake (4,300 in Kreuzberg-Mukhina *et al.* 2001, however, the number was presented differently by the counters). In the same area, 1,370 birds were counted in October 2000 and only 9 birds in October 2001, when the Sudochye Wetlands had been degraded owing to drought (Kreuzberg-Mukhina and Lanovenko 2000; Kreuzberg-Mukhina *et al.* 2001; Elena Kreuzberg-Mukhina, pers. comm., May 2002). However, the White-headed Duck seems to have returned to Akushpa Lake with more than 700 birds counted in early October 2002 (Elena Kreuzberg-Mukhina, pers. comm., October 2002).

5. CONSERVATION STATUS AND ACTIONS

Due to the rapid decline of the White-headed Duck in the Central Asian region, a number of actions have been taken for conservation of the species and its habitat at the national level, through the recognition and designation of the species as a protected species and declaration and management of important sites as protected areas/Ramsar sites, etc. The following section provides an overview of the international and national actions; additional details are provided in Chapter 8. Country Reports.

5.1 International Level

The White-headed Duck is a globally 'Endangered' species on the IUCN Red List (IUCN 2000).

It is listed on Appendix I of the Convention on Conservation of Migratory Animal Species (CMS) and on Appendix II of the Convention on the International Trade of Endangered Species of Flora and Fauna (CITES). It is also recognised as a priority species for conservation in the African-Eurasian Migratory Waterbird Agreement and in the Asia-Pacific Migratory Waterbird Conservation Strategy: 2001-2005.

Action plans have been produced at a global (Anstey 1989) and regional level in Europe (Green and Hughes 1996). The White-headed Duck is a flagship species for the Action Plan for conservation of the migratory waterbirds and wetlands in the Central Asian Flyway and is currently being developed by Wetlands International with CMS and others.

5.2 National Level

The following section outlines the status of current national legislation and protected areas that support White-headed Duck and conservation issues in each of the countries.

Afghanistan
No available information.

China
The White-headed Duck is listed in the Red Data Book of China (Wang *et al*. 1998). The species is not listed as a nationally protected species.

Several potential habitats for the White-headed Duck in Xinjiang Autonomous Region, western China have been given protected status, including, Bayinbuluk National Reserve, Tian Shan Tianchi Nature Reserve and Hanasi Nature Reserve. In other regions, all the sites for which there are records of White-headed Duck, have also been given protected status, including, Ordos Nature Reserve in Inner Mongolia Autonomous Region, Honghu Nature Reserve in Hubei Province and East Dongting Lake Nature Reserve in Hunan Province.

India
The White-headed Duck is included in the Red Data Book of India (1994). Hunting/poaching of the duck is not allowed as per the Wildlife (Protection) Act 1972 of India.

The White-headed Duck may also be protected at a local level as local people often do not allow hunters to enter these areas protect many Indian wetlands with large waterbird congregations (especially those occurring during the northern winter months).

Iran
Hunting of White-headed Duck is prohibited under the Game and Fish Law (1967, amended in 1996); Article 13 of which forbids the hunting of rare and endangered wild animals.

Except for the Zoulbin, Yanigh and Bozojigh areas, all of the other important sites for the White-headed Duck in Iran are protected. Ghorigol is a Ramsar Site and a Non-hunting Area, Miankaleh is a Ramsar Site

and Protected Area, Arjan and Parishan are Ramsar Sites and Protected Areas, Gandoman is a Wildlife Refugee and Hamoun-I Puzak is a Ramsar site.

Kazakhstan
The White-headed Duck is listed in the Red Data Book of Kazakhstan as an endangered species (1996).

Tengiz-Korgalzhyn Lakes Region, the most important sites for breeding and migrating White-headed Ducks, were declared strictly protected nature reserves in the late 1980s /early 1990s. They were also Ramsar sites during Soviet Union times, but as ratification of the Convention by Kazakhstan is still pending, the status of these sites remains unresolved.

Kyrgyz Republic
The White-headed Duck is included in the national Red Book (1985) and is not listed as a species that can be hunted.

Mongolia
The White-Headed Duck is listed as a rare species in the earlier Law on Hunting (1995), the new Law on Fauna (2000) and the Mongolian Red Book (1997).

The main breeding sites are protected: Uvs Lake Basin was declared a Strictly Protected Area in 1993 and Khar Us Lake and Khyargas Lake were declared National Parks in 1997 and 2000, respectively. Khar Us Lake is also listed as a Ramsar Site.

Russia
The White-headed Duck is included in the Red Data Book (2001) of the Russian Federation. The species is also protected by the Wildlife Law (1995) for conservation of rare species and protected by a shooting ban throughout the former USSR.

Some of most important sites for White-headed Duck are protected, though mainly as non-hunting areas or "Zakazniks" (corresponding to IUCN category IV for protected areas). There are a total of 9 protected areas in the Asian part of Russia and 5 in the European part.

Regular monitoring of the status and distribution of breeding White-headed Ducks are being conducted.

Pakistan
The White-headed Duck is legally protected in all provinces and federal units in Pakistan. It is included in Schedule 3 of protected animals under the Punjab Wildlife Protection, Conservation and Management Act 1974, revised in 1991.

Khabekki, Jahlar, Nammal and Kharal have all been declared as Wildlife Sanctuaries where habitat disturbance, hunting and trapping are prohibited. Ucchali Lake has been declared a Game Reserve where hunting is allowed only under special permit.

The Ucchali Complex, which includes Khabekki, Ucchali and Jahlar Lakes, was designated as a Ramsar site in March 1996. A management plan for this area was formulated by WWF-Pakistan and the Punjab Wildlife and Parks Department in 1994. It was revised subsequently by the Department in 1999.

The White-headed Duck is proposed for inclusion in the official list of threatened bird species (Red Data Book) currently being compiled by WWF- Pakistan.

Tajikistan
Due to the unclear status of the White-headed Duck in Tajikistan, it was not included in the new edition of the Red Data Book of Tajikistan (1988).

Turkmenistan
The White-headed Duck is listed as Vulnerable species – under the category of a "species with declining number" in the second edition of the national Red Data Book (1999).

Legislation and regulations relating to White-headed Duck conservation in Turkmenistan include: Act about preservation and rational usage of fauna, 1997; Act about protected areas, 1992; The Model Statute about Governmental Nature Reserves of Turkmenistan, 1994; The Model Statute about Governmental Arboretums of rare and threatened animals and plants in Turkmenistan, 1995; Completion of a National Action Plan on Biodiversity Conservation in Turkmenistan (2002); and a "National Caspian Action Plan" (in preparation).

Uzbekistan
The White-headed Duck is protected under the law of the Republic of Uzbekistan on protection and usage of animals (December 1997).

It is included in the national Red Data Book (1983) as a "species close to extinction in Central Asia". In the new edition (in press), the species is categorised as Endangered. The Red Data Book of Uzbekistan is a judicial document, which provides protection for all species included.

The national hunting regulations of Uzbekistan list the White-headed Duck as a species that can not be hunted. High fines are imposed on violators of this regulation.

The most important sites for White-headed Ducks in Uzbekistan are the Sudochye Wetlands and Dengizkul Lake. Both are protected as "Zakazniks" or non-hunting areas (corresponding to IUCN category IV for protected areas). Dengizkul Lake was designated as a Ramsar Site in February 2002.

6. THREATS

Reviews of threats to the White-headed Duck and its conservation by BirdLife International (2000, 2001) conclude that the species has largely suffered from drainage of about 50% of breeding habitat during the 20th century, the threat of pollution to existing sites, competition and hybridisation with Ruddy Duck, drowning in fish nets, hunting and ingestion of lead shot and that the droughts in Kazakhstan could have caused the recent poor breeding seasons.

This section provides information on threats to White-headed Duck and its habitat within the Central Asian region (Table 3) with additional country-specific details provided in Chapter 8 Country Reports. There have been some studies and reports of specific threats to the species and these relate largely to climatic changes and drought, habitat loss and degradation, and hunting and other disturbances. A potential threat to White-headed Duck also exists through the possibility of competition and hybridisation with the introduced Ruddy Duck.

Table 3: Overview of current threats to the White-headed Duck and its habitat in the Central Asian region

Threat	Afghanistan	China	Iran	Kazakhstan	Mongolia	Pakistan	Russia (Asian part)	Tajikistan	Turkmenistan	Uzbekistan
1. Climate change and drought	X	X	X	X	X	X	X	X	X	X
2. Habitat loss and degradation										
Water abstraction	X	X	X	X		X	?	?	X	X
Pollution				?		X				
Introduction of fish species	X		X			X				
Destruction to reed beds			X		X	X				X
Agricultural practices in/around wetlands				X	X	X				
3. Hunting and disturbance										
Hunting				X	?X					
Fishing			X	X		X				
Agricultural practices in/around wetlands				X	X	X				

Notes:
1. India, Kyrgyz Republic and Tajikistan are not included, as there are none/few records of White-headed Duck
2. X indicates the reported occurrence of a threat to the species and/or its wetlands. Further verification is needed on the impact of each threat to the White-headed Duck and its wetlands.

6.1 Climatic changes and drought

Anstey (1989) concluded that continued decline of suitable wetland habitat is the main threat to White-headed Duck in Russia and Kazakhstan. The wetlands are affected by a natural phenomenon of cyclic climatic changes that result in the short-term fluctuation of water levels. As these are naturally shallow wetlands, they only conducive for the species to breed in certain years (Sergei Yerokhov, pers. comm., October 2002). The negative effect of natural climatic changes on the breeding habitat of the species is aggravated by drainage of wetlands for agricultural and other uses.

The drought in the Central Asian region over the last few years has greatly reduced wetland habitat for White-headed Duck and other waterbirds. Many important sites for the White-headed Duck have totally dried out, or its area and water level have greatly reduced in the last few years. For example:

- The Ucchali Complex in Pakistan used to host more that 700 White-headed Duck in the 1980s, but less than 10 birds were recorded in 2002 as the wetlands have almost completely dried out.
- At the Sudochye Wetlands in western Uzbekistan, only 9 White-headed Duck, less than 50 other ducks and three hundred gulls were counted in October 2001. This wetland almost completely disappeared after the very dry summer of 2001. However, in the previous two years, more than 70,000 waterbirds, including 3,800 White-headed Ducks, were recorded here. A GEF World Bank project being implemented in this area includes a lake restoration component that aims to ensure enhanced storage of water in these wetlands and is expected to result in increased waterbird numbers in the future.
- The Dengizkul Lake in Uzbekistan is also degraded as a result of drought over the past years.
- The Sistan wetlands that straddle southwest Afghanistan and Iran have largely dried out.

In 2001, the International Research Institute for Climate Prediction reported that: "A persistent multi-year drought in Central and Southwest Asia has affected close to 60 million people as of November 2001." The principal conclusions of this report were:

- Central and Southwest Asia represent the largest region of persistent drought over the past three years anywhere in the world.
- From a regional perspective, the ongoing drought has been the most severe in recent decades.
- Significant shortfalls in precipitation have led to widespread social and economic impact, particularly in Iran, Afghanistan, Western Pakistan, Tajikistan, Uzbekistan and Turkmenistan. Agriculture, animal husbandry, water resources, and public health have been particularly under stress throughout the region.

Preliminary analysis suggests that the drought is related to large-scale variations in the climate across the Indian and Pacific Oceans, including the recent "La Niña" in the eastern Pacific.

The long-term effects of drought on the viability of White-headed Duck populations are unknown although potentially serious. The lack of water has resulted in degradation and desiccation of critical breeding sites in Kazakhstan, Mongolia, Russia and Uzbekistan, wintering sites in Pakistan, Iran and Turkmenistan, and also on staging sites in Afghanistan, Kazakhstan, Uzbekistan, Iran, Turkmenistan and possibly Tajikistan.

6.2 Habitat loss and degradation

The natural climatic changes outlined above have caused significant loss of habitat for White-headed Ducks. However, a range of human uses of the wetlands and their catchment areas have further reduced and degraded the available habitat and has limited the range of wetlands that are presently available to the species. These factors include:

- Overuse and unsustainable use of water resources for irrigation and man-made modifications to many wetlands is the most serious threat. For example, the Hamun-i Puzak, on the Afghanistan - Iran border was an important site for White-headed Duck in the 1970-80s, until the development of irrigation and water supply schemes that resulted in reduced water flows and changes to its ecology and vegetation (Scott 1995). In Mongolia, a proposed dam in the Dalai Lake and Khar Lake area, an important breeding site for White-headed Duck, is predicted to have an impact on water levels and ecology.
- Agricultural practices in and around lakes and rivers have a negative impact by increasing run off and sedimentation rates in some wetlands that affect the productivity and food availability for the White-headed Duck.
- Pollution of wetlands from human activities is reported as a threat in several countries. Leaching and run-off of fertilisers and pesticides from agricultural fields that surround the wetlands of the Ucchali complex in Pakistan are known to pollute the wetlands, although their impact has not been determined (Chaudhry 2002). Pollution from industrial and household sources is affecting several wetlands (Scott 1989).

- Damage to reed beds in wetlands in Uzbekistan and Mongolia results in the loss of nesting habitat of White-headed Duck. Damage occurs through harvest of reeds for human use, cattle grazing (especially through overgrazing) or burning of reed beds for improved fodder production for cattle. Introduction of the Muskrat *Ondatra zibethicus* for its pelt has resulted in the destruction of many reed beds in the temperate regions of Central Asia.
- Introduction of Tilapia *Oreochromis* sp. and Grass Carp *Ctenopharyngodon idella* into wetlands in Pakistan and Afghanistan respectively has affected the ecological balance of vegetation, fish and other species. These introductions are thought to have impacts on the availability of food for White-headed Duck and other waterbird species.

6.3 Hunting and disturbance

Hunting of White-headed Duck is legally banned in most countries. This species is extremely susceptible to hunting pressure (Green *et al.* 1996). While in the last several decades, there is little documented evidence of it being deliberately hunted in the region, it is possible that it is hunted and not reported, especially if it is shot by poachers or accidentally by hunters who are unable to identify this species. Though there is widespread use of lead shot by hunters in the region, there are no reports of the impact of ingestion of lead shot in White-headed Duck from Pakistan or elsewhere in the Central Asian region. This may be due to the lack of sufficient observations and inability of hunters and local authorities to detect the symptoms and cause of death of birds poisoned by lead.

Additionally, human activities in or around lakes have both direct and indirect effects on White-headed Duck. Fishing activities and disturbance by monofilament fish nets are recognised as an increasing problem in Iran, Kazakhstan and Pakistan.

6.4 Competition and hybridisation with Ruddy Duck

The European population of White-headed Duck is threatened with competition and hybridisation with the Ruddy Duck that was introduced in UK in the 1950s. It has established itself in UK and thereafter spread to continental Europe where it has also established itself in Spain, and has been regularly recorded from north, west and eastern Europe. It has been recorded in North Africa (Morocco) and Asia (Hughes 1996). Control measures have been successful but the species is still persists in Europe. Observations in UK, Spain and elsewhere have demonstrated that the hybrids are stable over several generations. Ruddy Ducks known to be the most aggressive of all Anatidae species (Hughes 1992) and limited observations from Spain suggest that the Ruddy Duck and hybrids are dominant over all Anatidae with which they have been observed (Hughes 1996).

Although records of Ruddy Duck in Asia are scarce (with very few records from Israel and Turkey), these serve as evidence of the bird's migratory capabilities and potential to spread into the breeding population in Central Asia. Monitoring of the eastward movement of Ruddy Duck and of hybrids would be valuable to enable preventive measures to be undertaken before there is a threat to the main Central Asian breeding birds.

7. RECOMMENDATIONS

Six main recommendations have been proposed for conservation of the White-headed Duck in the Central Asian Region. These include:

7.1 All countries need to undertake a review of their national policy and legislation to ensure adequate legal protection for the White-headed Duck and its enforcement.

The study has revealed that this species is not recognised as a globally endangered species in need of protection in the national legislation of all the countries.

7.2 Sustainable management of water resources is needed to ensure adequate allocation of water to maintain viability of wetland habitats used by White-headed Duck.

This is the highest priority for the conservation of the threatened populations of White-headed Duck, and many other waterbird species in the Central Asian region. The Action Plan for Migratory Waterbirds in the Central Asian Flyway, is also expected to include measures to address water management and wetland conservation issues in Central Asian countries. The Action Plan should be endorsed by conservation authorities in each country and adequately resourced to ensure its implementation.

7.3 Site conservation measures, such as the establishment of an international network of sites of importance for migratory waterbirds, including the White-headed Duck, need to be pursued.

The site network should ensure the conservation of important wintering, migratory and breeding sites of this species. Restoration of previously important wetlands for migratory waterbird species should also be considered.

7.4 A flyway-wide project should be developed for conservation of the White-headed Duck and its wetland habitats through building and strengthening links between wetland managers and organisations involved in the conservation of the White-headed Duck across the region.

The project should include activities on site management, habitat restoration, species identification and monitoring, training, publication of information material, education and awareness raising.

7.5 A comprehensive population-monitoring programme should be developed to monitor the distribution and the status of the White-headed Duck in the Central Asian region during the wintering, migratory and breeding seasons.

Information on the distribution and number of birds is still inadequate for many areas and countries. Therefore a comprehensive approach is required to monitor the status of the species.

7.6 Research to define the migration routes and population boundaries of the White-headed Duck is urgently required.

Satellite-tracking of selected individuals should be able to provide useful information on the main routes and staging areas (once satellite-tracking technology can be used for this species). This should be considered a priority. Migration studies through colour marking and banding (ringing) activities should also be considered, with the involvement of all countries.

In addition to these recommendations, a number of country specific recommendations have been madein Chapter 8 Country Reports.

8. COUNTRY REPORTS

This Chapter contains detail information on the status of White-headed Duck in all countries in the Central Asian region. A list of all sites with location details for all White-headed Duck records since 1980 is provided in Appendix A. Detailed information sheets for some key sites for White-headed Duck is provided in Appendix B.

8.1 AFGHANISTAN

8.1.1 Historical records and distribution

The status of the White-headed Duck is generally unclear in Afghanistan. However, this species has been recorded at a few sites in Afghanistan in the 1960s-1970s.

At the Kole Hashmat Khan Lake, White-headed Ducks were recorded in small numbers on passage in the 1960s and 1970s, and may have bred (see Map 2). At the Ab-I Istada Lake near the Pakistan border, White-headed Duck was recorded in May 1977 (Anstey 1989).

The Hamun-i Puzak Lake, located on the border with Iran, seems to have been one of the most important sites for White-headed Duck in Afghanistan (Scott 1995). The species is known to have been sedentary and bred in the marshes in the early part of the last century. The only record of White-headed Duck on the Iranian side of the border was a flock of 42 birds at the south end of the Hamun-i Puzak in one winter during the 1970s. Most of the Hamun-i Puzak which lies in Afghanistan, normally does not dry out, and provides a good habitat for White-headed Duck. An aerial survey of this lake in January 1976 by Derek Scott and others found at least 10 White-headed Duck (Scott 1995 and pers. comm., April 2002).

Map 2: Distribution of the White-headed Duck in Afghanistan during the 1960s-1970s.

No.	Site name	Location
1	Ab-I Istada Lake near the Pakistan border	32°30'N, 67°55'E
2	Hamun-i Puzak Lake border with Iran	31°20'-31°40'N, 61°35'-61°50'E
3	Kole Hashmat Khan Lake	34°30'N, 69°12'E

However, it is expected that the severe drought over the last years (International Research Institute for Climate Prediction 2001) would have resulted in the desiccation of this wetland and other wetlands previously used by White-headed Duck.

8.1.2 Recent records and distribution
No available information.

8.1.3 Population and trends
Unclear.

8.1.4 Conservation status
Unclear.

8.1.5 Threats
Drought. Other threats are unclear.

8.1.6 Recommendations
The long running war and its negative impact on the national economy has resulted in a breakdown in government structures and functions. As these are being rebuilt, it is to be expected that government agencies will have a limited capacity and consider it a lower priority to undertake conservation efforts for a threatened species in the next few years.

The authors of the report have proposed the some recommendations in recognition of the limited current knowledge base that exists and/or is being reported on birds and habitats in the country:

- Conduct a comprehensive survey of wetlands to identify important sites and population status of White-headed Duck in Afghanistan.

- Identify conservation needs of White-headed Duck and restoration/management needs of the important staging and wintering sites for the species.

- Establish a regular monitoring programme of waterbirds, in conjunction with the Asian Waterbird Census and other monitoring programmes, at all potential and suitable habitats for the threatened White-headed Duck and other species.

- Identify training and other needs of local government personnel to undertake monitoring and conservation measures of White-headed Duck and other waterbirds and their habitats.

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8.2 CHINA

8.2.1 Historical records and distribution
The White-headed Duck is a very rare species in China. The status and distribution of its population is unclear. Breeding birds have been recorded in the Junggar Basin and Tian Shan Mountain in western Xinjiang Autonomous Region (Cheng Tso-hsin 1987). There is a single wintering record of a bird in November 1961 in Honghu Lake, Hubei Province (Guan Guanxun and Cheng Tso-hsin 1962).

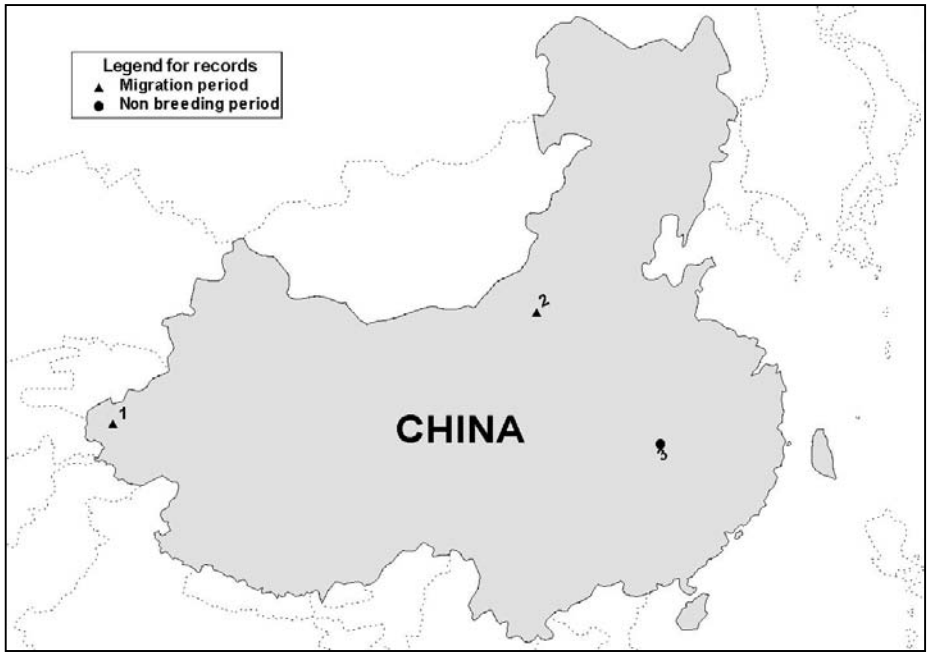
8.2.2 Recent records and distribution
One female was recorded in Ordos Lake, at the Inner Mongolia Autonomous Region in late March 1999 (He Fenqi, pers. comm., May 2002). In March 2001, one bird was recorded at Caisang Lake, in the northwestern corner of East Dongting Lake, Hunan Province. As with the record from Honghu in 1991, this bird was most likely a vagrant (Lei Gang, pers. comm., October 2002; Sebastian and Davies 2001). According to Ma Ming (2001), the species could be found at several locations in western Xinjiang Autonomous Region - Tian Shan, Kezilesu Autonomous Region, Aktao, Boston Lake, Yanqi, Heshuo and Changji during the migratory, wintering and breeding seasons.

An overview of records of White-headed Duck in China is summarised in Table 4 and site locations are provided in Map 3.

Table 4: Recent records of the White-headed Duck in China, 1980-2002.

Date	No. of birds recorded	Site name and location	Counter/source
March (1981-1988)	Some specimens	Akto, Near Kashi City, West Xinjiang Autonomous Region	Ma Ming 2001
Late March 1999	1 male	Ordos Lake, Inner Mongolia Autonomous Region	MacKinnon *et al.* 2000
March 2001	1	Caisang Lake, northwest corner of East Dongting Lake, Hunan Province	Sebastian and Davies 2001

Map 3: Distribution of the White-headed Duck in China during 1980-2002.



No.	Site name	Location
1	Akto, Near Kashi City, Western Xinjiang	39°10'N, 76°00'E
2	Ordos, Inner Mongolia	39°48'N, 109°20'E
3	Caisang Lake, northwest corner of East Dongting Lake, Hunan Province	29°27'N, 112°48'E

8.2.3 Population and trends

With very few observations, the population size and trend of White-headed Duck is unclear in China. However the species may be decreasing in Xinjiang (Ma Ming, pers. comm., May 2002); as increased use of water for agriculture in the region and a cycle of extended drought have changed water conditions in many wetlands.

8.2.4 Conservation status

The White-headed Duck is listed in the Red Data Book of China (Wang *et al*. 1998). The species is not listed as a nationally protected species.

Several nature reserves have been established in the Xinjiang Autonomous Region; these are potential areas for the White-headed Duck. These include the Bayinbuluk National Reserve (148,689 ha), Tian

Shan Tianchi Nature Reserve (38,069 ha) and Hanasi Nature Reserve (220,162 ha). Other areas where White-headed Duck have been recorded such as East Dongting Lake in Hunan Province, Ordos Lake in Inner Mongolia Autonomous Region and Honghu Lake in Hubei Province, have been legally protected as nature reserves.

8.2.5 Threats

In Xinjiang the main threats to White-headed Duck and it's habitats are fishing, hunting, agricultural expansion and over-grazing. Additionally, the rapid increase of human population has resulted in increasing pressure on natural resources, including water (Ma Ming, pers. comm., May 2002).

Drought and unsustainable use of water resources in Xinjiang and Inner Mongolia may also pose a threat to White-headed Duck and its habitats.

8.2.6 Recommendations

The following recommendations have been proposed primarily on the basis of information and feedback from government and non-government respondents to the survey.

- Conduct a comprehensive survey to determine the population status and distribution of breeding and staging sites of White-headed Duck in Xinjiang Autonomous Region and Inner Mongolia Autonomous Region.

- Undertake regular winter waterbird census in the lakes of southern China to identify and monitor this threatened species.

- Strengthen ongoing waterbird monitoring activities to ensure coverage of White-headed Duck sites to determine population trends of this threatened species.

- Establish nature reserves covering the main White-headed Duck habitats on the basis of surveys to ensure conservation of breeding, staging and wintering sites of this eastern-most population.

- Ensure protection of key sites for White-headed Duck from hunting and other disturbances and changes in ecological character of the wetlands.

- Promote sustainable use and management of water resources, especially during drought years, to ensure adequate water levels at breeding and staging sites of White-headed Duck.

- Undertake awareness raising activities through the media to highlight the need for conservation of key sites for White-headed Duck.

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8.3 INDIA

8.3.1 Historical records and distribution

The White-headed Duck is a rare winter visitor to North India. Historical records in the late 19th and early 20th century reveal that the birds were found from northern India, south to eastern Rajasthan and central Uttar Pradesh (Ali and Ripley 1983, BirdLife International 2001). Hume (1887) remarked that this duck population has not recovered for many years, and many immature birds were shot during the early 1880s.

8.3.2 Recent records and distribution

In January 1997, a team of eight persons, from the Centre of Wildlife and Ornithology, Aligarh Muslim University, conducted a waterbird count in Amakhera wetland, near Aligarh in Uttar Pradesh (see Table 5 and Map 4). One White-headed Duck was found, representing a new record for this area and the most recent record from India (M. Zafar-ul Islam, pers. comm., May 2002). Other than this, one bird was recorded in Harike Lake in Punjab in September 1984 by the Bombay Natural History Society (BirdLife International 2001).

Table 5: Recent records of the White-headed Duck in India, 1980-2002.

Date	No. of birds recorded	Site name and location	Counter/source
September 1984	1	Harike Lake, Punjab	BirdLife International 2001
January 1997	1	Amakhera wetland, 40km from Aligarh, Uttar Pradesh	M. Zafar-ul Islam, pers. comm., May 2002

8.3.3 Population and trends

The species is a rare and declining winter visitor to northern India (M. Zafar-ul Islam, pers. comm., May 2002).

8.3.4 Conservation status

The White-headed Duck is included in the Red Data Book of India. Hunting/poaching of the species is not allowed as stated in the Wildlife (Protection) Act 1972 of India.

The White-headed Duck may also be protected at a local level as many Indian wetlands with large waterbird congregations (especially during the northern winter months) are protected by local people who often do not allow hunters to enter these areas.

Given its extreme rare status, no active research has been conducted on White-headed Duck in India. Waterbird counts and a ringing programme coordinated by the Bombay Natural History Society provide quantitative information on many other waterbird species.

Map 4: Distribution of the White-headed Duck in India during 1980-2002.

No.	Site name	Location
1	Amakhera wetland, Uttar Pradesh	27°31'N, 78°19'E
2	Harike Lake, Punjab	31°10'N, 75°00'E

8.3 5 Threats

Intensive hunting in northern India during the early part of the last century has presumably contributed to the decline of the species wintering in this region. Ali (1936) commented, "no one who has visited the

larger dhands or jheels in.…northern India during the cold weather can have failed to remark upon the magnitude of the netting operations that go on throughout this season for supplying the markets of the larger towns, both near and distant, with wildfowl of every description for the table." Local inhabitants around these lakes apparently subsist largely on duck meat during the winter, at least when duck numbers were high enough. With the increasing human population, hunting pressure has presumably been extreme and overall waterbird numbers have fallen dramatically as a result.

In the state of Jammu and Kashmir, an estimated 4,000-8,000 geese and ducks have been killed in each winter hunting season during the 1980s, although this was believed to be an underestimate because a large number of illegal hunting was also being conducted (Pandit 1982). Waterbird populations in the state have been undoubtedly suffering from these high levels of exploitation. Added to the direct pressure on the birds, deterioration of wetland habitats through drainage, siltation and development (Pandit 1982) have presumably led to the apparent disappearance of the White-headed Duck from the state.

Harike Lake where the species has been recorded has become clogged with Water Hyacinth *Eichhornia crassipes* (Ali *et al*. 1983, Scott 1989, Singh 1992). In 1980, only 40% of the lake was covered with the weed, while over 70% of the lake was covered in 1989, and 75% in 1994 (Scott 1989, Ladhar 1994). The Lake also suffers from siltation and there are fears that it is drying out and becoming unsuitable for wildlife (Ali *et al*. 1983, Scott 1989, Singh 1992). Deforestation and erosion of the watershed have accelerated this process dramatically, and at the current rate of shrinkage, the wetland would disappear in 80 years (Ladhar 1994). Similar problems affect many Indian wetlands, especially those in the north (Scott 1989). Harike Lake is also threatened by wildlife poachers (Singh 1992) and 24-hour fishing has been reported to cause disturbance in the 1980s (Scott 1989). Gill nets used by fishermen at the lake have also led to mortality of waterbirds (Scott 1989) and has been considered a threat to White-headed Duck in Pakistan and Kazakhstan (refer sections 8.5.5 and 8.8.5).

8.3.6 Recommendations

The following recommendations have been proposed primarily on the basis of information and feedback from government and non-government respondents to the survey.

- Conduct regular monitoring of waterbirds at all potential and suitable habitats for the threatened White-headed Duck in conjunction with the Asian Waterbird Census and other monitoring programmes.

- Protect key sites for White-headed Duck from hunting and other disturbances and changes in ecological character of the wetlands.

- Undertake awareness raising through the media to highlight the need for conservation of key sites for White-headed Duck.

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8.4 ISLAMIC REPUBLIC OF IRAN

8.4.1 Historical records and distribution

Five elements in the population of White-headed Duck in Iran have been identified during studies in the 1970s (Scott 1995; Derek Scott, pers. comm., May 2002).

- A wintering population in southeast Caspian, based on Gorgan Bay and lakes on the Turkoman Steppes to the east (36°35'-37°23'N, 49°55'-54°52'E). In normal winters, only 20-30 birds are found in this area, but in the winter of 1971/72, there were at least 453.

- A small breeding population in the Azerbaijan and Kurdistan Provinces in northwestern Iran (36°57'-37°50'N, 45°30'-46°40'E). An estimated 5-10 pairs of White-headed Duck were present in lakes in the Orumiyeh Basin (Yadegarlu, Dorgeh Sangi and Kobi Lake), several pairs at Gorigol and Zaribar Lake (Kurdistan). These were summer visitors, as the lakes freeze over in winter. They are assumed

to have migrated west to winter in Turkey, as there were no records from Khuzestan Province in southwestern Iran, and the species seems to be very rare in Iraq.

- Passage birds in the Orumiyeh Basin in Azerbaijan (36°57'N, 45°30'E). A count of at least 100 at Kobi Lake on 23 November 1972 suggested that some birds were passing through Azerbaijan (along with huge numbers of other ducks) during the southward migration. It is supposed that these belonged to the East Mediterranean/Turkey/Southwest Asia wintering population.

- A small and apparently rather sedentary breeding population in the wetlands of the southern Zagros mountains - centred around Dasht-i Arjan and Parishan Lake in Fars Province (28°10'-31°50'N, 50°50'-53°30'E). The highest count in the 1970s was a count of 93 birds at Parishan Lake in the winter of 1969/70. Only a few pairs bred at Parishan Lake, and it is suspected that the others dispersed to breed in lakes at higher elevations in the general area (these lakes freeze over in winter).

- Birds that are occasionally observed in the Seistan wetlands on the Iran/Afghanistan border (31°20'N, 61°45'E). During the early 1970s, the Iranian portion of these wetlands dried out completely, so it is unlikely that there is a resident, regular wintering or passage population here. An aerial survey of the Hamoun-i Puzak in January 1976 by Derek Scott and his team found at least 10 White-headed Duck.

8.4.2 Recent records and distribution

According to data provided by the Department of Environment, Iran (Hamid Amoni, Sadegh Sadeghi Zadegan, Yavar Shahbazi and Behrouz Behrouzi-Rad, pers. comm., April 2002) and Behrouzi-Rad (1996), White-headed Duck are mainly distributed in the following three areas in the last 10 years:

- The wintering population in southeast Caspian Sea, based on Gorgan Bay and the lakes on the Turkoman Steppes to the east appears to have increased. In January 1995, 1,483 birds were recorded in the area and 584 in January 2002.

- The small breeding population in Eastern Azerbaijan (Zoulbin, Yanigh, Bozojigh and Ghorigol). In the breeding season of 1996, 46 birds were recorded in this area, 67 in 1997; 241 in 1998; 125 in 1999; 83 in 2000 and 170 in 2001, although the number of breeding pairs is not known.

- The wintering population in the wetlands of the southern Zagros, centred around Dasht-i Arjan and Parishan Lake in Fars Province. In January 1988, 455 birds were recorded in the Parishan Lake. Small numbers of White-headed Duck were regularly recorded during the 1990s in this region. The latest count was 4 birds recorded at Parishan Lake in January 2001.

An overview of records of White-headed Duck in Iran is summarised in Table 6 and site locations are provided in Map 5.

8.4.3 Population and trends

The size and the trends of the White-headed Duck population in Iran are unclear due to inconsistent surveys and monitoring. Drought conditions in some years result in fluctuations in the status and distribution of the wintering population. The peak counts of the species have been 1,485 in January 1995 and 591 in January 2002 (Hamid Amoni, Sadegh Sadeghi Zadegan and Yavar Shahbazi, pers. comm., April 2002).

8.4.4 Conservation status

The White-headed Duck is a threatened bird in Iran and the law prohibits its hunting. Under Article 13 of the 1967 Game and Fish Law (as amended in 1996), the hunting of rare and endangered wild animals is forbidden.

The birds of Iran have not been categorised within a National Red List. However, the IUCN Red List is recognised by the Department of Environment.

Except for the Zoulbin, Yanigh and Bozojigh areas, all of the other sites are protected as follows: Ghorigol - Ramsar Site, Non Hunting Area, Miankaleh - Ramsar Site, Biosphere Reserve and Protected Area, Arjan and Parishan: Ramsar Site -Biosphere Reserve, and Protected Area, and Gandoman -Wildlife Refuge.

Table 6: Records of the White-headed Duck in Iran, 1980-2002.

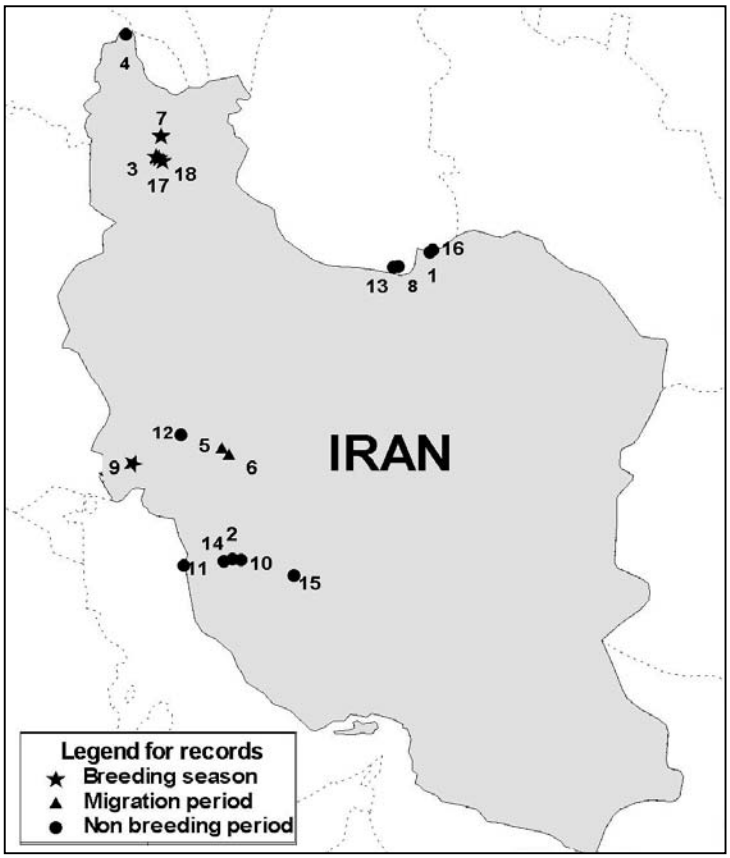
Date	No. of birds recorded	Site name and location	Counter/source[2]
Jan 1988	173	Helleh Region	Asian Waterbird Census database (AWC)
Jan 1988	455	Parishan Lake, Zagros Mountains, Fars Province	AWC
Jan 1991	12	Parishan Lake	AWC
Jan 1991	7	Gorgan Bay	AWC
Jan 1992	17	Parishan Lake	AWC
Jan 1992	3	Miankaleh Protected Area, southeast corner of the Caspian Sea, Mazandaran	AWC
Jan 1993	12	Haftbarm, Fars Province	Heidar Farhadpour
Jan 1993	52	Parishan Lake	Heidar Farhadpour
Jan 1994	37	Arjan, Fars Province	Heidar Farhadpour
Jan 1995	1,450	Ulma Gol Lake, Mazandaran	International Waterbird Census database (IWC)
Jan 1995	33	Miankaleh Protected Area	IWC
Jan 1995	2	Parishan Lake	Heidar Farhadpour
Jan 1996	13	Arjan, Fars Province	Heidar Farhadpour
June 1996	29	Zoulbin, Eastern Azerbaijan	Shahbazi
June 1996	17	Yanigh, Eastern Azerbaijan	Shahbazi
Sep 1996	8	Bozojigh, Eastern Azerbaijan	Shahbazi
Nov-Dec. 1996	17	Izeh, Khuzestan Province	Behrouz Behrouzi-Rad
April 1997	4 (1M+1F+2J)[1]	Gorgor, south Iran	Behrouz Behrouzi-Rad
11 May 1997	1	Gorgor	Behrouz Behrouzi-Rad
Jan 1997	35	Arjan	Heidar Farhadpour
Feb-Mar 1997	10	Chaghakhor, Upper Karun River in Zagros Mountains	Department of Environment (DoE.) Cheharm- ahal Province
Feb-Mar 1997	6	Gandoman, Upper Karun River in Zagros Mountains	DoE. Cheharm- ahal Province
June 1997	42	Ghorigol	Shahbazi
Sep 1997	25	Bozojigh	Shahbazi
June 1998	108	Ghorigol	Shahbazi
June 1998	45	Zoulbin	Shahbazi
Sep 1998	88	Bozojigh	Shahbazi
Jan 1999	26	Tashk and Kamjan, Fars Province	Heidar Farhadpour
June 1999	87	Ghorigol	Shahbazi
Sep 1999	38	Bozojigh	Shahbazi
June 2000	83	Ghorigol	Shahbazi
Jan 2001	4	Parishan Lake	Heidar Farhadpour
June 2001	170	Ghorigol	Shahbazi
Jan 2002	534	Alagol Lake, Mazandaran	DoE, Golestan Office
Jan 2002	50	Miankaleh Protected Area	Vetr and Bathaii
Jan 2002	7	Bur Alan, West Azerbaijan	Raanaghad and Abbasnejad

Notes:
[1] - Male - M, Female - F, Juvenile – J
[2] – Information provided by Department of Environment, Iran (Hamid Amoni, Sadegh Sadeghi Zadegan, Yavar Shahbazi and Behrouz Behrouzi-Rad, pers. comm., April 2002).

8.4.5 Threats

Hunting of White-headed Duck is legally forbidden in Iran. Although illegal hunting may occasionally take place, it is not considered a threat to the population. Egg collecting does not occur. Reduced water levels during the breeding season may cause nests to be abandoned and may allow terrestrial predators access to eggs (Hamid Amoni, Sadegh Sadeghi Zadegan and Yavar Shahbazi, pers. comm., April 2002). Birds are caught and drowned in fishing nets (Derek Scott, in Green and Hughes 1996).

Map 5: Distribution of the White-headed Duck in Iran during 1980-2002.



No.	Site name	Location
1	Alagol Lake, Mazandaran	37°21'N, 54°35'E
2	Arjan, Fars Province	29°37'N, 51°59'E
3	Bozojigh, East Azerbaijan	37°27'N 46°46'E
4	Bur Alan, West Azerbaijan	39°40'N, 44°45'E
5	Chaghakhor, Upper Karun River, Zagros Mountains	31°55'N, 50°54'E
6	Gandoman, Upper Karun River, Zagros Mountains	31°50'N, 51°07'E
7	Ghorigol, East Azerbaijan	37°55'N, 46°42'E
8	Gorgan Bay	36°52'N 53°53'E
9	Gorgor, south Iran	Approx. 30°30'N, 48°30'E
10	Haftbarm, Fars Province	29°40'N, 52°10'E
11	Helleh Region	29°09'N, 50°55'E
12	Izeh, northeast of Ahwaz, Khuzestan Province	31°54'N, 49°52'E
13	Miankaleh Protected Area, southeast Caspian Sea, Mazandaran	36°50'N, 53°45'E
14	Parishan Lake, Zagros Mountains, Fars Province	29°31'N, 51°48'E
15	Tashk and Kamjan, Fars Province	29°40'N, 53°30'E
16	Ulma Gol Lake, Mazandaran	37°25'N, 54°38'E
17	Yanigh, East Azerbaijan	37°25'N, 46°59'E
18	Zoulbin, East Azerbaijan	37°27'N 46°51'E

8.4.6 Recommendations

The following recommendations have been proposed primarily on the basis of information and feedback from government and non-government respondents to the survey.

- Undertake a research project to determine and monitor the breeding population and breeding habitats of White-headed Duck.

- Conduct regular monitoring of waterbirds at important breeding, wintering, and staging sites of White-headed Duck.

- Promote sustainable use and management of water resources, especially during drought years, to ensure adequate water levels at breeding, staging and wintering sites of White-headed Duck.

- Protect all wetland habitats where White-headed Duck has been found in recent years.

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8.5 KAZAKHSTAN

8.5.1 Historical records and distribution

Kazakhstan is known to hold the largest population of breeding White-headed Duck in the world (Cresswell *et al.* 1999). Important habitats for White-headed Duck in Kazakhstan are located in the northern steppe region of the Republic. These habitats have a natural cycle of high and low water that takes place over several years. In the high water periods during summer, a number of areas are available as breeding habitats for the White-headed Duck. There may be about five years of good conditions for breeding of White-headed Duck followed by a drying cycle of 8 to 10 or 12 years of poor rain. So, for 4-6 years after high water, conditions are suitable for breeding, moulting and staging White-headed Ducks. After that, the water becomes shallow and saline and the habitat is no longer suitable for White-headed Duck to breed. The birds prefer a water depth of greater than 2 m (Sergey Yerokhov, pers. comm., October 2002).

The main breeding populations are located in the Tengiz-Korgaldzhyn Lakes Region (see Table 7 and Map 6). The Nura River supplies freshwater to Tengiz-Korgaldzhyn Lakes (Sergey Yerokhov, pers. comm., October 2002). Approximately 30-70 individuals were recorded in the 1960s in this region (Anstey 1989). The Naurzumskiy Lakes receive water from melted snow.

Table 7: Records of the White-headed Duck in Kazakhstan until 1980.

Date	No. of birds recorded	Site name and location	Counter/source
May-September 1969-1989	230 pairs	Presnovskiy and Mibalykskiy Lakes and Naurzumskiy Lakes in northern Kazakhstan. Chany and Baganskiy Lakes, southwest Siberia, Russia[1].	Gordienko *et al*. 1986 Gordienko 1995, 1998
1960s	30-70	Korgalzhyn Lake, Tengiz-Korgalzhyn Lakes Region	Anstey 1989
1960s	30 pairs	Naurzumskiy Lakes	Anstey 1989
16 April 1976	12	Raim Lake, Kamysh-Samara Lakes	Morozov and Shevchenko 1998
19 April 1976	120	Aidyn Lake, Kamysh-Samara Lakes	Morozov and Shevchenko 1998
Breeding season 1976	3	Kamysh-Samara Lakes	Morozov and Shevchenko 1998

Note: [1]The record refers to southern Russia and northern Kazakhstan

The lakes in the south do not have the same natural water cycles and receive water from more regular water sources. Formerly, the east coast of the Aral Sea and the Syr Darya River was an important breeding area, but now the birds are only recorded during migration and reasons for this change are not clear (Sergey Yerokhov, pers. comm., October 2002).

The Kamysh-Samara Lakes in the North Caspian region of Kazakhstan, including Aidyn, Soraidyn and Raim Lakes, near the mouth of Malyj Usen' River, Novaya Kazanka region was an important area for breeding and spring migration during the 1970s to 1980s (Morozov and Shevchenko 1998).

8.5.2 Recent records and distribution

In the last decade there have been a number of studies of waterbirds that have revealed new information on the status of White-headed Duck in Kazakstan. An overview of records of White-headed Duck in Kazakhstan is summarised in Table 8 and site locations are provided in Map 6.

In the Presnovskiy, Mibalykskiy and Naurzumskiy Lakes in northern Kazakhstan, breeding was recorded during 1969 to 1989 by Gordienko (1986, 1995, 1998, 2001). In 1998, White-headed Duck were observed during migration at Naurzumskiy Lakes (Kovshar and Berezovikov 2000). In June 2001, 3 birds were recorded by Goetz Eichhorn (pers. comm., August 2002) in this region.

Around northern Caspian and the Ural Delta, the birds are now observed each summer but no breeding has been recorded. In northwest Kazakhstan the birds are known to breed, but an estimate of the breeding population is not available (Sergey Yerokhov, pers. comm., October 2002). Based on observations made during the northward migration in 1982-1996 at Kamysh-Samara Lakes, 105 birds were recorded during the breeding season in 1986 (Morozov and Shevchenko, 1998).

Figures from lakes in the Tengiz-Korgalzhyn depression, central Kazakhstan, reveal the great importance of this particular region for breeding, moulting and staging White-headed Duck. There was a maximum count of 1,918 individuals in the whole area during summer/autumn 1999 made by Goetz Eichhorn and Thomas Heinicke, a few hundred pairs estimated in May 2000 by Thomas Heinicke, a maximum count of 3,700 counted by Lars Lachmann in September 2000, and a maximum count of 1,708 in August-September 2001 by Joerg Ratayczak (Lachmann *et al*. in preparation). Data collected during the northward migration by these authors is not yet sufficient to provide an indication of the relative importance of this area during this period. However, records of a flock of 800 duck in the spring of 1998 (Cresswell *et al.* 1999) indicate the importance of this area during this period.

The latest count of White-headed Duck in the Tengiz-Korgalzhyn region was conducted in summer/autumn 2002 by Holger Schielzeth. During the survey, 72 birds were counted in July, 1,269 birds in early August, 1,067 birds in late August, 4,021 birds in the middle of September, and 2,709 birds in early October. By 15 October, nearly all the White-headed Ducks had left with only 4 birds present. At this time severe weather conditions with freezing temperatures of -10^{o}C, have caused many lakes to be frozen. The highest count in 2002 was 4,021 birds during 12 to 23 September. However, two important sites, Kumdykol and Nygis Lake are not included, which supposedly hold another 1,000 birds. Therefore the minimum estimate for the White-headed Duck would be around 5,000 birds in the Tengiz-Korgalzhyn Region during the post-breeding and autumn migration season (Lars Lachmann *et al.* in preparation, Holger Schielzeth, pers. comm., October 2002).

Andrew Grieve (pers. comm., May 2002) recorded over 2,800 White-headed Duck at Kyzylkol Lake, southern Kazakhstan in September 2001 at a time when simultaneously at least 1,100 White-headed Duck were still present in the Tengiz-Korgalzhyn Region. Other records for this species at the Kyzylkol Lake are of 20 individuals (6 males and 14 females) counted on 28 May 2001. In mid September 2002, Andrei Gavrilov observed around 2,000 White-headed Duck at Kyzylkol Lake and about 800 birds were seen by Joost van der Ven in mid October 2002 (Joost van der Ven, pers. comm., November 2002). On 30-31 May 2001 on the lakes of Kaldykol and Biyikkol, 2 male individuals were recorded (Belyalov *et al.* 2002).

Six birds have been recorded in eastern Kazakhstan at Alakol Lake in September 1998 (Cresswell *et al.* 1999), where the species has not been recorded during the breeding season since the 1970s (Sergey Yerokhov, pers. comm., October 2002).

In southeastern Kazakhstan, after 10 White-headed Duck were recorded in 1980-1981 at the Sorbulak Lake, 24 individuals (17 males and 7 females) were recorded there on 20 March 2001, and on 1 May 2001, 6 ducks with 1 displaying male were recorded there (Belyalov *et al.* 2002). In September 2001, 6 birds were recorded (Andrew Grieve, pers. comm., May 2002). White-headed Duck sometimes occur on the floodplain lakes of Topar River of the Taukmy Desert on migration. On 12 March 1998, one pair was hunted, and one bird was recorded in this region on 27 May 1998 (Berezovikov *et al*. 1999).

Table 8: Records of the White-headed Duck in Kazakhstan, 1980-2002.

Date	No. of birds recorded	Site name and location	Remarks[1]	Counter/Source
May-September 1969-1989	230 pairs	Presnovskiy and Mibalykskiy Lakes and Naurzumskiy Lakes in northern Kazakhstan. Chany and Baganskiy Lakes, southwest Siberia, Russia.	The record refers to southern Russia and northern Kazakhstan	Gordienko *et al*. 1986 Gordienko 1995, 1998
21 April 1982	46	Raim Lake		Morozov and Shevchenko 1998
21 April 1985	250	Raim and Aidyn Lake		Morozov and Shevchenko 1998
9 April 1986	490	Aidyn Lake		Morozov and Shevchenko 1998
Breeding season 1986	105	Kamysh-Samara Lakes		Morozov and Shevchenko 1998
27 April 1987	51	Aidyn Lake		Morozov and Shevchenko 1998
16 April 1996	18	Raim Lake		Morozov and Shevchenko 1998
17 April 1996	49	Soraidyn Lake, Kamysh-Samara Lakes		Morozov and Shevchenko 1998
Spring 1998	800	Tengiz-Korgalzhyn Lakes Region (TKL) - Korgalzhyn Lake		Cresswell *et al.* 1999
12 March 1998	one pair	Topar River, Taukmy Desert, southeastern Kazakhstan	hunted	Berezovikov *et al*. 1999
27 May 1998	one bird	Topar River		Berezovikov *et al*. 1999
2 May 1998	6	Malyi Aksaut Lake of Naurzumskiy Lakes.		Kovshar and Berezovikov 2000
27 Jul 1998	3	TKL - Korgalzhyn Lake	(1F +2J)	Cresswell *et al.* 1999
29 July 1998	12	TKL - Kokai Lake	(4M+8F/J)	Cresswell *et al.* 1999
24 Sep 1998	6	Alakol Lake, east Kazakhstan	(2M+4F/J)	Cresswell *et al.* 1999
27 Sep 1998	15	TKL - Kokai Lake	(4M+11F/J)	Cresswell *et al.* 1999
9-12 May 1999	119	TKL - Korgalzhyn Lake	48 adult male	Lachmann *et al*. in prep.
23 Jul-7 Aug 1999	860	TKL - Korgalzhyn, Saumalkol, Zhumaj Lakes	481 adult male	Lachmann *et al*. in prep.
14 Aug-1 Sep 1999	1,918	TKL – Korgalzhyn, Saumalkol, Zhumaj Lakes		Lachmann *et al*. in prep.
10-21 Sep. 1999	1,420	TKL – Korgalzhyn, Saumalkol, Zhumaj, Kumkol Lakes		Lachmann *et al*. in prep.
29 Sep 1999	299	TKL – Saumalkol Lake		Lachmann *et al*. in prep.
8-11 Oct. 1999	133	TKL - Saumalkol, Kumkol Lakes	Saumalkol 108, Kumkol 25	Lachmann *et al*. in prep.
15 May 2000	24	Kyzylkol Lake near Syr Darya Karatau, south Kazakhstan	(12 pairs)	Andrew Grieve, pers. comm., April 2002
May 2000	A few hundred pairs	TKL		Lachmann *et al*. in prep.

Date	No. of birds recorded	Site name and location	Remarks[1]	Counter/Source
21 Jul-8 Aug 2000	270	TKL – Korgalzhyn, Sholak, Saumalkol, Zhumaj, Kumkol Lakes		Lachmann *et al*. in prep.
7-21 Sep 2000	3,700	TKL - Korgalzhyn, Sholak, Saumalkol, Zhumaj, Kumkol, Kumdykol and Nygis Lakes		Lachmann *et al*. in prep.
5-9 Oct 2000	715	TKL - Korgalzhyn, Kumkol, Kumdykol and Nygis Lakes		Lachmann *et al*. in prep.
20 March 2001	24	Sorbulak Lake, Almaty, southeast Kazakhstan	(17M+ 7F)	Belyalov *et al*. 2002
1 May 2001	6	Sorbulak Lake	(1M)	Belyalov *et al*. 2002
28 May 2001	20	Kyzylkol Lake	(6 M +14 F)	Belyalov *et al*. 2002
30-31 May 2001	2	Kaldykol and Biyikkol Lakes, south Kazakstan		Belyalov *et al*. 2002
8 June 2001	3	Sholakkopa lake, Naurzumskiy region	(1M+2F)	Goetz Eichhorn, pers. comm., August 2002
13-21 June 2001	166	TKL - Korgalzhyn, Kumkol Lakes	146 AM	Lachmann *et al*. in prep.
29 July 2001	308	TKL - Sholak Lake		Lachmann *et al*. in prep.
11-15 Aug 2001	1,708	TKL - Korgalzhyn, Sholak, Zhumaj, Kumkol Lakes		Lachmann *et al*. in prep.
21-29 Aug 2001	1,343	TKL – Korgalzhyn, Sholak, Zhumaj, Kumkol Lakes		Lachmann *et al*. in prep.
2-4 Sep 2001	1,153	TKL - Sholak, Zhumaj, Kumkol Lakes		Lachmann *et al*. in prep.
16 Sep 2001	1,100	TKL –Saumalkol, Zhumaj and Kumkol Lakes		Lachmann *et al*. in prep.
15 Sep 2001	2,838	Kyzylkol Lake		Andrew Grieve, pers. comm., April 2002
20 Sep 2001	6	Sorbulak Lake		Andrew Grieve, pers. comm., April 2002
6-7 July 2002	72	TKL – Zhumaj, Kumkol, Ashykol Lakes		Holger Schielzeth, pers. comm., October 2002
4-18 Aug 2002	1,269	TKL - Korgalzhyn, Bestobe, Kyzylkol, Zhumaj, Kumkol, Ashykol Lakes		Holger Schielzeth, pers. comm., October 2002
23-28 Aug 2002	1,067	TKL - Korgalzhyn, Bestobe, Saumalkol, Zhumaj, Bajbota, Ashykol Lakes		Holger Schielzeth, pers. comm., October 2002
12-23 Sep 2002	4,021	TKL –Korgalzhyn, Kyzylkol, Kerej, Saumalkol, Zhumaj, Bajbota, Kumkol, Ashykol Lakes		Holger Schielzeth, pers. comm., October 2002
Mid Sep 2002	Around 2,000	Kyzylkol Lake		Observation by Andrei Gavrilov. Joost Van der Ven, pers. comm., November 2002
4-9 Oct 2002	2,709	TKL - Korgalzhyn, Kyzylkol, Kerej, Saumalkol, Zhumaj, Bajbota, Kumkol Lakes		Holger Schielzeth, pers. comm., October 2002
Mid Oct 2002	800	Kyzylkol Lake		Joost Van der Ven, pers. comm., November 2002
15 Oct 2002	4	TKL - Zhumaj, Kumkol Lakes		Holger Schielzeth, pers. comm., October 2002

Note: [1] - M - Male, F - Female, J - Juvenile, AM - Adult Male

8.5.3 Population and trends

Surveys in the 1980s estimated the breeding population of White-headed Duck in north Kazakhstan and southwest Siberia in Russia at about 300 pairs (Gordienko 1986). Recent surveys and research have provided new information on the population and distribution of the White-headed Duck in Kazakhstan. However, it is still not possible to estimate the overall population and trends (Andrew Grieve, pers. comm., May 2002).

Map 6: Distribution of the White-headed Duck in Kazakhstan during 1980-2002

No.	Site name	Location
1	Alakol Lake, east Kazakhstan	45°59' N, 81°28'E
2	Kaldykol and Biyikkol Lakes	43°00'N, 70°30'E
3	Kamysh-Samara Lakes (Raim and Soraidyn Lake)	48°54'-48°57'N, 49°34'-49°42'E
4	Tengiz-Korgalzhyn Lakes Region, include	50°10'-50°50'N, 68°40'-71°00'E
	Korgalzhyn Lake	50°28'N, 69°33'E
	Kokai Lake	50°28'N, 69°23'E
	Kumdykol	50°32'N, 70°44'E
	Kumkol	50°47'N, 70°03'E
	Kyzylkol Lake	50°20'N, 69°42'E
	Nygis	50°31'N, 70°41'E
	Saumalkol	50°39'N, 69°42'E
	Sholak Lakes	50°33'N, 69°49'E
	Zhumaj	50°41'N, 69°48'E
5	Kyzylkol Lake, south Kazakhstan	43°44'N, 69°30'E
6	Naurzumskiy Lakes	51°30'N, 64°00'E
7	Presnovskiy and Mibalykskiy Lakes	Approx. 54°00'N, 70°00'E
8	Sorbulak marshes, Almaty, southeast Kazakhstan	43°36'N, 76°47'E

There are several hundred pairs of White-headed Duck breeding in the Tengiz-Korgalzhyn Lakes region, although the actual number is still unknown (Lachmann *et al*. in preparation). Over the last 15 years, the population at Tengiz-Korgalzhyn Lakes Region has apparently increased. The species has also been recorded more frequently in southeastern Kazakhstan (Almaty region). Thus, such increases in numbers may also have occurred at other sites in Kazakhstan (Goetz Eichhorn, pers. comm., May 2002).

Conservative estimates for the minimum breeding population of Kazakhstan could be at least 300-500 pairs, although this figure is probably an underestimate of the true population.

8.5.4 Conservation status
The White-headed Duck is included in the Red Data Book of Kazakhstan as an Endangered species.

Korgalzhyn Lake and adjacent lakes, the most important area for the species in Kazakhstan, was declared as a Zapovednik (strictly protected nature reserve) in 1968. This area was also declared as Ramsar site in the former Soviet Union, but the ratification of the Convention by Kazakhstan is pending and the status of these sites has not been resolved.

8.5.5 Threats
Generally there is no major threat from habitat destruction, pollution or hunting. Disturbance from fishing activities is common (Cresswell *et al*. 1999). Much of the lake is surrounded by reeds and there is extensive fishing. Due to the use of fishing nets and related disturbance, it is possible that the young ducks are caught in nets. Pressure from fisheries across the country is increasing and is becoming a bigger threat than hunting (Sergey Yerokhov, pers. comm., October 2002).

Climate change is thought to be causing more frequent droughts resulting in reduced water levels and the drying out of many lakes in Kazakhstan. This phenomenon may be a great threat to the survival of the White-headed Duck.

8.5.6 Recommendations
The following recommendations have been proposed primarily on the basis of information and feedback from government and non-government respondents to the survey.

- Conduct regular monitoring of waterbirds at important breeding, wintering, and staging sites of White-headed Duck.

- Undertake a research project to determine and monitor the breeding population and breeding habitats of White-headed Duck.

- Undertake awareness raising activities through the media to highlight the need for conservation of key sites for White-headed Duck.

- Develop and implement a National Species Action Plan for the conservation of White-headed Duck and its habitats in Kazakhstan.

- Extend the "Important Bird Areas" programme to Kazakhstan to identify and conserve important breeding and staging sites for White-headed Duck.

- Ensure legal protection of important breeding and staging sites for White-headed Duck, such as Kyzylkol Lake and enforcement of regulations on hunting.

- Undertake an evaluation of potential threats, such as through contaminants, at all important sites for White-headed Duck.

- Promote sustainable use and management of water resources, especially during drought years, to ensure adequate water levels at breeding and staging sites of White-headed Duck.

- Strengthen conservation and management of the Zapovednik of Tengiz-Korgalzhyn Lakes Region, including through provision of training of rangers and staff.

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8.6 KYRGYZ REPUBLIC

8.6.1 Historical records and distribution

The White-headed Duck is a very rare species in the Kyrgyz Republic. Van der Ven (2002) classified this species as 'vagrant' in the Kyrgyz Republic but noted that no reliable record of this species has been obtained.

8.6.2 Recent records and distribution

No reliable data is available. Reports about visits to several lakes of the country from different time in the last few years do not mention this duck (van der Ven, pers. comm., November 2002).

In the winter of 2001, staff of the Issyk-Kul Nature Reserve (around 42°27'N, 77°16'E) organised regular waterbird surveys in the reserve. They recorded 80-85 species of waterbirds and no White-headed Duck was counted (D. Salmakeev, pers. comm., May 2002). The only record is of the species appears to be of 6-10 birds that were reported to have been seen at a number of different sites in the Issyk-Kul region by the staff of the Nature Reserve (D. Salmakeev, pers. comm., May 2002). However these observations are not supported by additional information, such as names of counters, dates and locations etc., and unless this is avilable, these observations may not be considered reliable.

8.6.3 Population and trends

Vagrant, not relevant.

8.6.4 Conservation status

The species is also included in the National Red Data Book but there have been no special protection measures taken. It is not included on the list of species that may be hunted and by the regulation, all birds not on the hunting list are protected. There has been no research conducted on this duck and no ringed or colour banded individuals have been reported.

8.6.5 Threats

Unclear.

8.6.6 Recommendations

The following recommendations have been proposed primarily on the basis of information and feedback from government and non-government respondents to the survey.

- Conduct regular surveys for White-headed Duck, particularly in the wetlands of southern and southwestern Kyrgyz Republic.

- Provide training and capacity building for staff of nature reserves throughout the country to ensure proper monitoring of waterbirds.

- Coordinate research and conservation measures for White-headed Duck in the Central Asian region with institutions in other countries.

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8.7 MONGOLIA

8.7.1 Historical records and distribution

Based on available information, the White-headed Duck was first recorded in Mongolia on 7 September 1979 at Zost Lake (48°54'N, 93°18E') in Uvs Province by a joint Mongolian-Russian expedition. Since then, this species has been recorded in the Great Lakes Basin of western Mongolia in the 1980s and 1990s at Airag Lake (in 1979), Uvs Lake (in 1981) and Khayrgas Lake (in 1981) (Bräunlich and Tseveenmyadag, in preparation; N. Tseveenmyadag, pers. comm., April 2002).

The species breeds in small numbers in wetlands of the Great Lakes Basin. This basin covers an area of c.106,000km² and extends between approximately 46°-51°N and 90°30'-96°E. The average elevation is about 1,100 m. The basin is divided into three parts: the Uvs, Khyargas and Sharga Lakes Depressions. It is surrounded by mountain ranges of the Altai, the Khangai and the Tagnyn Mountains. The Great Lakes Basin holds a series of lakes that are fed by rivers from mountains of the Altai and the Khangai Mountains. These rivers end in broad deltas and lakes. Some are freshwater lakes, whilst some are saline lakes. The biggest freshwater lakes are the Khar Us Lake and the Khar Lake which are connected by the Chono Kharaikh Gol. Khar Lake is connected with the Dorgon Lake by a natural channel. The Dzavkhan Gol feeds the freshwater Airag Lake, which drains into the Khyargas Lake. The Buyant Gol and Khovd rivers run from the Altai Mountains and flow into the Khar Us Lake. The Dzavkhan and Khunggui rivers run from the Khangai Mountains and flow into the Airag Lake.

8.7.2 Recent records and distribution

An overview of records of White-headed Duck in Mongolia is summarised in Table 9 and site locations are provided in Map 7.

The White-headed Duck has been recorded in the Kovd Province in the 1990s; 238 birds were recorded in September 1998 at the southern section of Khar Us Lake. There is a report of "a large colony" in June 2000 at Uvs Lake, Uvs Province (D. Batdelger, pers. comm., May 2002).

In recent years, the breeding range of White-headed Duck appears to have extended about 700km to the east, to Olon Lake in the Bulgan Province (N. Tseveenmyadag, pers. comm., April 2002).

8.7.3 Population and trends

Due to a lack of research and monitoring, the population size and trends of White-headed Duck in Mongolia are not clear. Two respondents to the survey provide different population estimates and additional field surveys and information is required.

N. Tseveenmyadag (pers. comm., April 2002) estimates that there are about 500-1000 White-headed Ducks in Mongolia. The approximate number of breeding pairs at the main breeding sites:

- 100 pairs in the Tes River Delta, east of Uvs Lake;
- 5-10 pairs at Shuvuun Tsuglaan Lake, west of Uvs Lake;
- 10-20 pairs in the Zost Lakes, west Airag Lake;
- 100-150 pairs in Khar-Us Lake, Chono-kharaikh, Khoit Dalai (northern sea), island of White River (Tsagaan Gol); and
- a single observation of 5 birds in central Mongolia in June 2001.

Dashnamjilyn Batdelger (pers. comm., May 2002) believes that the number of White-headed Duck in Mongolia is increasing, and the population is 150-200 individuals. This figure may have been underestimated given a count of 238 birds at Khar Us Lake in September 1998 and the "large colony" at Uvs Lake in June 2000. According to the recent counts, the breeding population of the White-headed Duck in Mongolia could be around 250 pairs.

8.7.4 Conservation status

The White-headed Duck is listed as a rare species in the previous Law on Hunting (1995), the new Law on Fauna (2000) and the Mongolian Red Book (1997).

According to the Mongolian Law on Hunting, Law on Fauna and Red Book, it is prohibited to hunt White-headed Duck. Collection of specimens of White-headed Duck for scientific purposes is permitted under special permission. Mongolians traditionally do not hunt waterbirds. Therefore hunting does not exert much influence on bird numbers.

White-headed Duck are protected under the following Mongolian Laws and regulations: Mongolian Law on Environmental Protection (1995); Mongolian Law on Special Protected Areas (1995); Mongolian Law on Buffer Zones (1997); Mongolian Law on Water (1995); Biodiversity Conservation Action Plan (1996); National Program on Special Protected Areas (1998); National Program on Water (1999); National

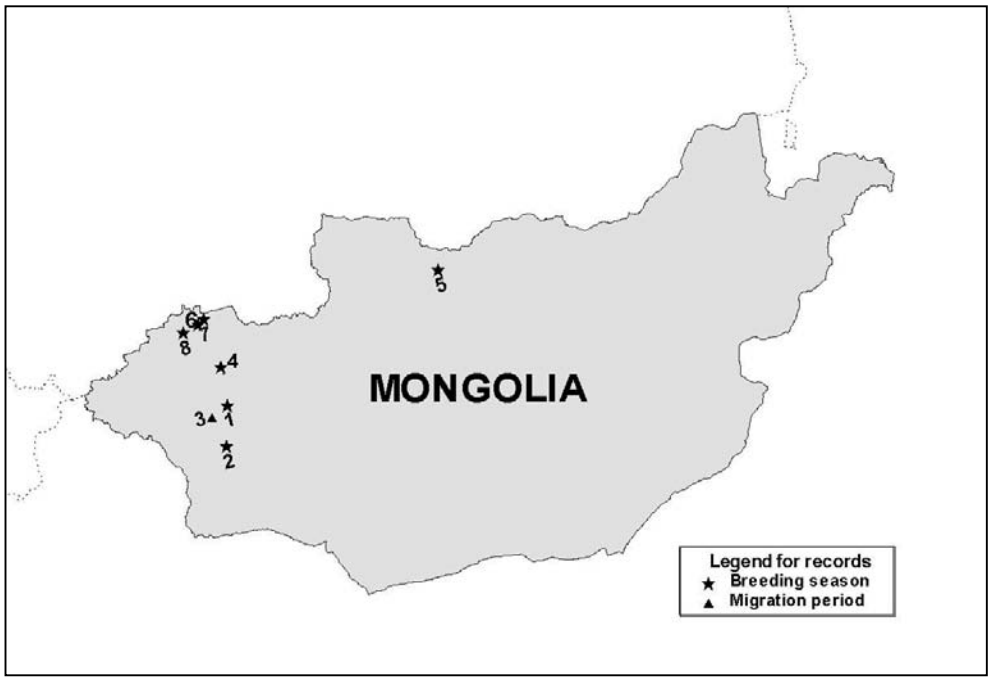
Ecological Education Program (1997); Cabinet Ministry Re. 152, Appendix 1, List of Rare Animals (1995).

Table 9: Records of the White-headed Duck in Mongolia, 1980-2002.

Date	No. of birds recorded	Site name and location	Remarks[1]	Counter/source
July 1981	20	Uvs Lake, Uvs Province		D. Batdelger pers. comm., May 2002
End of July 1981	18	Uvs Lake and terminus of Tes River		Boldbaatar Sh. 1997
End of July 1981	8	Khayrgas Lake, Uvs Province		Boldbaatar Sh. 1997
14-17 Aug 1981	15-20/day	Jiree and Tes River Mouth, east side of Uvs Lake	2MA, 2MJ, 3FJ collected	Observation by Sh. Boldbaatar and D. Batdelger. N. Tseveenmyadag, pers. comm., April 2002
19-20 May 1985	3	Shuvuun Tsuglaan Lake, west side of Uvs Lake	1MA	N. Tseveenmyadag, pers. comm., April 2002
5-8 Jun 1985	5-9/day, 20 on last day	Jiree and Tes River Mouth, east side of Uvs Lake	5-9 MA/day, last day about 20AD, 10FA	Observation by N. Tseveenmyadag and D. Batdelger. N. Tseveenmyadag, pers. comm., April 2002
13 Jun 1985	1	Shuvuun Tsuglaan Lake, west Uvs Lake	1MA	Observation by N. Tseveenmyadag and D. Batdelger. Bräunlich and Tseveenmyadag, in prep.
8 May 1995	1	Hodoo Lake, near Zereg, Kovd	1F	Bräunlich 1995
10 May 1995	22	Khar Us Lake (southern section), Kovd	9M,13F	Bräunlich 1995
16 Jun 1995	29	South part of Khar Us Lake (southern section), Kovd	28 M,1 F	Bräunlich 1995
21 Jun 1995	2	Chono Kharaikh River Delta/ Khar Lake, Kovd	1 pair	Bräunlich 1995
13 Jun 1996	12	Khar Us Lake (southern section)	9 M,3F	Observation by M. Köpman. Bräunlich and Tseveenmyadag, in prep.
27 Jun 1998	2	Khar Us Lake	1M,1F	S. Gombobaatar pers. comm., April 2002
24 Sep 1998	238	Khar Us Lake (southern section)	Including c.60 M	Liegl 1998
28-30 Jun 2000	"Large colony"	Uvs Lake		Observation by Valerii Moseikin. D. Batdelger, pers. comm., May 2002
27 Aug 2001	40	Khar Us Lake (southern section)	Minimum number of birds	Observation by C. Bock. Bräunlich and Tseveenmyadag, in prep.
28 Aug 2001	3	Khar Us Lake (southern section)	Minimum number of birds	Observation by C. Bock. Bräunlich and Tseveenmyadag, in prep.
28 Jun 2001	5	Olon Lake, Bulgan	3MA and 2FA	Observation by S. Boldbaatarr and G. Mainjagal. N. Tseveenmyadag, pers. comm., April 2002

Note: [1] M - Male(s), F - Female(s), MA - Male Adult, FA – Female Adult, MJ - Male Juvenile, FJ - Female Juvenile, AD - Adult(s)

Map 7: Distribution of the White-headed Duck in Mongolia during 1980-2002.



No.	Site name	Location
1	Chono Kharaikh River Delta/ Khar Lake	Approx. 48°05'N, 93°10'E
2	Hodoo Lake, near Zereg	Approx. 47°10'N, 92°50'E
3	Khar Us Lake (southern section)	47°45'- 48°23'N, 91°57'- 92°49'E
4	Khayrgas Lake, Uvs Province	48°58'- 49°20'N, 92°48'- 93°48'E
5	Olon Lake, Bulgan	49°52'N, 102°38'E
6	Uvs Lake, Uvs Province	49°59'- 50°41'N, 92°13'- 93°25'E
7	Jiree and Tes rivers Mouth, east side of Uvs Lake	50°25'N, 93°05E'
8	Shuvuun Tsuglaan Lake, west side of Uvs Lake	50°12'N, 92° 10'E

The Uvs Lake Basin was declared a Strictly Protected Area in 1993 and Khar Us Lake and Khyargas Lake were declared as National Parks in 1997 and 2000, respectively. Khar Us Lake was listed as a Ramsar site in 1999.

8.7.5 Threats

Habitat loss and degradation pose significant threats to some of the important sites. Specific threats include reported:

- Construction of a new dam (a planned hydroelectric power station at Chono Kharaikh Gol) will probably destroy breeding sites at Dalai Lake and Khar Lake due to predicted decrease in water levels, increased salinity and decline in aquatic vegetation.

- Livestock grazing on reed beds during winter. Currently reed beds in the southwest corner of Har Us Lake seem to be little affected by grazing during winter. However, a change in this situation might alter or even destroy this nesting area for White-headed Duck (Bräunlich 1995).

- Reed-cutting. At Khar Us Lake and other lakes, where White-headed Duck breed, local people cut the reeds in autumn to build cattle fences for protection of cattle in winter. They drain/dry the wetlands for reed cutting which causes habitat loss for White-headed Ducks.

- Agricultural irrigation activities along the main rivers in dry years.

- Steppe fires that spread into the reed beds and destroy nesting habitat.

- Destruction of reeds by Muskrat that reduce nesting habitat.

- Hunting. Although the species is legally protected, there remains a need for further enforcement of protection and education of local hunters on the legal and conservation status of the species.

8.7.6 Recommendations

The following recommendations have been proposed primarily on the basis of information and feedback from government and non-government respondents to the survey.

- Conduct surveys in potentially suitable wetlands in autumn (August/September) and spring/summer (May/June) to ascertain breeding populations and to identify and confirm the importance of key sites.

- Promote declaration of key sites for White-headed Duck as protected areas, with an emphasis on breeding sites.

- Identify major threats to White-headed Duck including habitat loss and degradation, study the impact or effects of winter grazing of cattle at south Khar Us Lake and incorporate results into a site management plan.

- Undertake a research programme on the White-headed Duck to investigate:
  - characteristics and status of main breeding sites,
  - breeding population size and trends through regular surveying and monitoring,
  - details on breeding biology of the species, including ascertaining clutch size, hatching, fledgling and breeding success and annual mortality,
  - seasonal habitat selection, and
  - feeding requirements and habits.

- Undertake a satellite-tracking project for White-headed Duck to identify the migratory routes and staging sites along the flyway. This will support efforts to develop and implement a comprehensive international conservation action plan.

- Organise a training course on waterbird and wetland conservation for rangers of protected areas.

- Organise an awareness raising and education programme for the local communities living around and within protected areas on the importance to conserve White-headed Duck and other waterbirds.

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8.8 PAKISTAN

8.8.1 Historical records and distribution

In Pakistan, the White-headed Duck has been historically recorded in districts of western Pakistan, Punjab, Baluchistan, Bahawalpur (BirdLife International 2001) and Sind (Roberts 1991). However, this species has mainly been recorded in Punjab since the 1960s, at Ucchali, Khabekki, Jahlar, Kallar Kahar, Kharal and Nammal Lakes (see Table 10). In January 1968, a peak count of a total of 1,039 birds was recorded in three wetlands in Punjab. But after 1989, the species has been recorded only from the Salt Range Lakes of Ucchali Complex: Ucchali, Khabekki and Jahlar Lake.

8.8.2 Recent records and distribution

In January 1983 and 1987, there were still 734 and 733 birds counted respectively in Pakistan, but from 1992-1994, only about 150 White-headed Duck recorded. The number of birds rapidly declined after 1995. From 1995-1998, only about 50 birds were recorded every year, and in 2001, only 10 birds were recorded (Chaudhry 2002 and Rahat Jabeen, pers. comm., May 2002).

Peak counts at the Ucchali Complex in January 2002 were very low with different numbers recorded by various observers. A. A. Chaudhry and his colleagues from the Punjab Wildlife Research Institute only

counted 5 birds at the Ucchali Complex, and the number was reduced to 3 in February 2002. However, 10 birds were recorded by Malik Farooq Ahmad, Field Officer of WWF–Pakistan. Zulfiqar Ali, Research Officer of WWF-Pakistan believes there were only 6 birds present in January 2002.

In the latest count carried out by Zulfiqar Ali (pers. comm., November 2002), a total of 34 birds have been recorded on 29 November 2002 at the Ucchali and Jahlar Lakes. At this time, the Khabakki Lake has totally dried up.

An overview of records of White-headed Duck in Pakistan is summarised in Table 11 and site locations are provided in Map 8.

Table 10: Records of the White-headed Duck in Punjab, Pakistan till 1980.

Date	No. of birds recorded	Site name and location	Counter/source
Jan 1967	218	Khabekki Lake	Pakistan Forest Institute Peshawar (PFIP)
Jan 1967	90	Kallar Kahar Lake	PFIP
Jan 1968	1,005	Ucchali Lake	PFIP
Jan 1968	9	Kallar Kahar Lake	PFIP
Jan 1968	25	Nammal Lake	PFIP
Jan 1970	1	Ucchali Lake	PFIP
Jan 1970	1	Khabekki Lake	PFIP
Jan 1970	4	Nammal Lake	PFIP
Jan 1971	161	Khabekki Lake	PFIP
Jan 1971	39	Nammal Lake	PFIP
Jan 1972	102	Ucchali Lake	PFIP
Jan 1972	85	Khabekki Lake	PFIP
Jan 1972	127	Nammal Lake	PFIP
Jan 1973	11	Ucchali Lake	PFIP
Jan 1973	388	Khabekki Lake	PFIP
Jan 1973	111	Nammal Lake	PFIP
Jan 1975	470	Ucchali Lake	PFIP

8.8.3 Population and trends

The White-headed Duck population in Pakistan has greatly decreased since the 1960s, when 1,039 birds recorded in 1968 has reduced to 733 in 1987. In 1994, there were still 148 birds counted in January, however, only about 10 birds were counted in January 2001and 2002 (Chaudhry 2002). Nevertheless, a total of 34 birds have been recorded on 29 November 2002 at the Ucchali Complex (Zulfiqar Ali, pers. comm., November 2002) but the field staff of WWF-Pakistan believe there are only 14 birds existing at the same time (Rahat Jabeen, pers. comm., November 2002). However it is believed that the numbers of the White-headed Duck is higher than in January 2001 and 2002.

The main reason for this decline in 2000-2002 is considered to be the shortage of rainfall in the area as rainfall has declined in Pakistan over the last five years and the Ucchali wetlands are natural closed basins fed only by rainfall. Some White-headed Duck in the Salt Range may have moved from the Ucchali Complex to surrounding ponds and water reservoirs (Rahat Jabeen, pers. comm., May 2002) where they are not recorded.

8.8.4 Conservation status

A range of measures have been undertaken by government, research institutes and the NGOs in relation to enforcement of legislation, awareness raising and related conservation measures.

Legislation: the White-headed Duck is legally protected in all provinces and federal units in Pakistan. It is included on Schedule 3 of protected animals under the Punjab Wildlife Protection, Conservation and Management Act 1974.

Table 11: Records of the White-headed Duck in Punjab, Pakistan, 1980-2002.

Date	No. of birds recorded	Site name and location	Counter/source
Jan 1983	734	Khabekki Lake	Pakistan Forest Institute Peshawar (PFIP)
Jan 1984	209	Khabekki Lake	PFIP
Jan 1984	46	Kallar Kahar Lake	PFIP
Jan 1985	120	Khabekki Lake	PFIP
Jan 1986	325	Khabekki Lake	PFIP
Jan 1987	620	Ucchali Lake	Punjab Wildlife Research Institute (PWRI)
Jan 1987	65	Jahlar Lake	PWRI
Jan 1987	48	Kharal Lake	PWRI
Jan 1988	154	Ucchali Lake	PWRI
Jan 1988	132	Jahlar Lake	PWRI
Jan 1989	100	Ucchali Lake	PWRI
Jan 1989	56	Jahlar Lake	PWRI
Jan 1989	31	Kharal Lake	PWRI
Jan 1990	18	Ucchali Lake	PWRI
Jan 1990	44	Jahlar Lake	PWRI
Jan 1990	14	Kharal Lake	PWRI
Jan 1991	2	Ucchali Lake	PWRI
Jan 1991	32	Khabekki Lake	PWRI
Jan 1991	30	Jahlar Lake	PWRI
Jan 1992	144	Khabekki Lake	PWRI
Jan 1992	2	Jahlar Lake	PWRI
Sep 1992	2	Jahlar Lake	PWRI
Oct 1992	12	Jahlar Lake	PWRI
Nov 1992	145	Jahlar Lake	PWRI
Dec 1992	50	Khabekki Lake	PWRI
Dec 1992	81	Jahlar Lake	PWRI
Jan 1993	36	Khabekki Lake	PWRI
Jan 1993	78	Jahlar Lake	PWRI
Feb 1993	43	Khabekki Lake	PWRI
Feb 1993	68	Jahlar Lake	PWRI
Mar 1993	43	Khabekki Lake	PWRI
Mar 1993	18	Jahlar Lake	PWRI
Apr 1993	3	Jahlar Lake	PWRI
May 1993	2	Jahlar Lake	PWRI
Jun 1993	2	Jahlar Lake	PWRI
Jul 1993	3	Jahlar Lake	PWRI
Aug 1993	3	Jahlar Lake	PWRI
Nov 1993	25	Khabekki Lake	PWRI
Nov 1993	111	Jahlar Lake	PWRI
Dec 1993	148	Jahlar Lake	PWRI
Jan 1994	144	Jahlar Lake	PWRI
Feb 1994	121	Jahlar Lake	PWRI
Mar 1994	43	Jahlar Lake	PWRI
Apr 1994	94	Jahlar Lake	PWRI
Jan 1995	14	Khabekki Lake	PWRI
Jan 1995	37	Jahlar Lake	PWRI
Jan 1996	32	Jahlar Lake	PWRI
Jan 1997	36	Khabekki Lake	PWRI
Jan 1997	16	Jahlar Lake	PWRI
Jan 1998	1	Ucchali Lake	PWRI
Jan 1998	3	Khabekki Lake	PWRI
Jan 1998	9	Jahlar Lake	PWRI
23 Mar 1998	9	Khabekki Lake	Zulfiqar Ali
23 Mar 1998	47	Jahlar Lake	Zulfiqar Ali

Date	No. of birds recorded	Site name and location	Counter/source
Oct 1998-Mar 1999	9	Khabekki Lake	Zulfiqar Ali
Oct 1998-Mar 1999	27	Jahlar Lake	Zulfiqar Ali
Jan 1999	8	Khabekki Lake	PWRI
21-Feb 1999	12	Jahlar Lake	PWRI
Mar 1999	8	Khabekki Lake	Malik Farooq Ahmad
Oct 1999	6	Khabekki Lake	Malik Farooq Ahmad
Nov 1999	6	Khabekki Lake	Malik Farooq Ahmad
Jan 2000	4	Khabekki Lake	PWRI
03-Jan 2000	7	Khabekki Lake	Zulfiqar Ali
03-Jan 2000	16	Jahlar Lake	Zulfiqar Ali
Feb 2000	6	Jahlar Lake	Malik Farooq Ahmad
Jan 2001	5	Khabekki Lake	PWRI
Jan 2001	10	Jahlar Lake	Zulfiqar Ali, Malik Farooq Ahmad
Jan 2002	10	Jahlar Lake	Malik Farooq Ahmad
Jan 2002	6	Jahlar Lake	Zulfiqar Ali
Jan 2002	5	Jahlar Lake	PWRI
Feb 2002	3	Jahlar Lake	PWRI
21 Oct 2002	9	Uchalli Lake	Zulfiqar Ali
21 Oct 2002	18	Jahlar Lake	Zulfiqar Ali
15 Nov 2002	11	Uchalli Lake	Zulfiqar Ali
15 Nov 2002	18	Jahlar Lake	Zulfiqar Ali
Nov 2002	14	Ucchali Complex	WWF-Pakistan
29 Nov 2002	14	Uchalli Lake	Zulfiqar Ali
29 Nov 2002	20	Jahlar Lake	Zulfiqar Ali
8 Dec 2002	11	Uchalli Lake	Zulfiqar Ali
8 Dec 2002	15	Jahlar Lake	Zulfiqar Ali

Protected Areas: Khabekki, Jahlar, Nammal and Kharal have all been declared as Wildlife Sanctuaries where all habitat disturbance, hunting and trapping is prohibited. Ucchali Lake has been declared a Game Reserve where hunting is allowed only on a special permit, but such permits have never been granted. The Ucchali Complex, which includes Khabekki, Ucchali and Jahlar Lakes was designated as a Ramsar site in March 1996.

Management: A management plan was formulated by WWF and Punjab Wildlife and Parks Department in 1994. The plan was revised subsequently by the Department in 1999.

The Government of Pakistan is currently developing a GEF/UNDP funded project for "Conservation of wetlands in Pakistan" wherein four wetlands are to be taken up for management planning and subsequent implementation.

Awareness/Education: An awareness campaign has been conducted in the area by the Punjab Wildlife and Parks Department since the late 1980s. WWF-Pakistan partly funded a project entitled "Conservation of Wetlands" during 1992 to 1996. Participatory Rural Appraisal exercises were conducted jointly by WWF-Pakistan and the Punjab Wildlife and Parks Department to gauge the community participatory potential in the area in December 1994. The Soan Valley Biodiversity Conservation Forum (formed by WWF-Pakistan and Soan Valley Development Programme) are also actively working in the area to help educate the public on conservation measures to be adopted to save the biodiversity/natural resources of the area. WWF-Pakistan is also running an awareness campaign focusing their activities on the conservation of waterbirds and wetlands.

The White-headed Duck has been proposed for inclusion in the list of threatened bird species (Red Data Book) currently being compiled by WWF-Pakistan. Within the South Asian region, Pakistan host almost the entire wintering population of the White-headed Duck and therefore, the country has a special responsibility for the conservation of the species (Roberts 1991). The recent drastic decline in its wintering population in Pakistan warrants immediate action.

Map 8: Distribution of the White-headed Duck in Pakistan during 1980-2002.

No.	Site name	Location
1	Jahlar Lake	32°29'N, 72°07'E
2	Kallar Kahar Lake	32°46'N 72°42'E
3	Khabekki Lake	32°37'N 72°14'E
4	Kharal Lake	30°53'N, 73°35'E
5	Ucchali Lake	32°33'N, 72°01'E

8.8.5 Threats

Threats to the wintering population of White-headed Duck are mainly related to habitat loss and modification, competition with fisheries, and to a lesser extent, hunting and disturbance.

- Habitat Loss and Modification: The main threat to the White-headed Duck population in Pakistan is habitat degradation and loss. The shallow wetlands occupied by the duck fluctuate naturally with climatic conditions such as rainfall. The intensity of rainfall and the amount of run-off determine the well being of the wetlands. Failure of rainfall in recent years has adversely affected wetlands and their extent has greatly been reduced. All three wetlands in the Ucchali Complex are surrounded by agricultural fields. Fertilisers and pesticides are frequently used. Leaching and run-off of fertilisers and pesticides in surface water pollutes the wetlands, although their impact has not been determined. Ucchali Lake is particularly prone to this source of pollution. The off-season cauliflower *Brassica* sp. crop, which takes only six weeks to mature, is the main cash crop in Ugali village on the northern edge of the lake. To increase yields, fertiliser and pesticide use is quite common. This uncontrolled usage results in the pollution of the lake. Over-abstraction of groundwater, both for drinking and for agricultural purposes, also causes a lowering of the water table and a subsequent reduction in the extent of lakes/wetlands. Most abstraction takes place in the Ucchali village on the southern edge of the Ucchali Lake.

  The land around the wetlands is privately owned and any reduction in the extent of the lakes prompts landowners to start cultivating exposed areas. This practice is most destructive at Khabekki Lake where the owners have cultivated the land right up to the edge of the water. At Ucchali Lake, the water has receded, but as the land has turned into a marsh, it is not suitable for cultivation. Noxious

gases emanating from the marsh make the habitat unsuitable for tourists. Jahlar is the only wetland that has so far retained its character to some extent as the exposed lakebed has not been cultivated.

In summary, wetland habitat has been lost at Khabekki Lake, degraded at Ucchali Lake and reduced at Jahlar Lake.

- Overgrazing: Vegetated areas around the lakes are heavily grazed by domestic livestock - buffaloes, cattle, sheep, goats, donkeys and camels. Grazing is much beyond the grazing capacity levels as found in the Participatory Rural Assessment exercise undertaken by WWF-Pakistan and Punjab Wildlife and Parks Department (1995).

- Fishing and fish introductions: Fishing activities at Khabekki threaten waterbirds in a number of ways: introduced fish compete for food with waterbirds, birds are caught and drown in fishing nets and fishing activities disturb waterbirds. White-headed Duck, however, are known to leave the lake during such periods when they are thought to disperse to Jahlar Lake.

  The population expansion of the introduced Tilapia *Oreochromis* sp. in Khabekki Lake resulted in eutrophication and mortality. These fishes were exterminated by the Fisheries Department after which various kinds of carp were introduced. These fish survived until they were killed by drought conditions in 2001. Fisheries operations have since ceased at the lake.

  Ucchali Lake has been considered unsuitable for the introduction of fish due to the pH and salinity of the lake. Jahlar is thought to be too small for fishing operations to be economically viable.

- Hunting and Disturbance: Hunting is not allowed on any of the aforementioned lakes. Instances of illegal hunting and poaching have been reported but not in recent years. White-headed Ducks could, however, be shot by mistake by hunters who are unable to identify the species.

- Recreation and disturbance: Recreational activities at Kallar Kahar; and boating operations at Ucchali Lake cause disturbance and affect waterbird populations.

Three other lakes, two in the Salt range –Nammal and Kallar Kahar, and the third (Kharal) in the central Punjab Plains, have already lost their habitat characteristics due to human interference and excessive recreational activities. The White-headed Duck no longer visits these lakes. At Nammal, fish have been introduced and the lake water is now being used for irrigating agricultural fields downstream. Kallar Kahar has now been developed into a recreational resort and due to disturbance, very few waterbirds visit the lake. Kharal was developed as a drainage basin to remove water from surrounding agricultural fields. Tilapia and carp were introduced into the lake. In the early 1990s reclamation projects were then started and the excess water was drained from the agricultural fields all around the lake hence the inflow of water to the lake was stopped resulting into the deterioration of habitat characteristics. The human population surrounding the wetland has increased and as a result of that, reclamation of land has increased.

8.8.6 Recommendations

The following recommendations have been proposed primarily on the basis of information and feedback from government and non-government respondents to the survey.

- Undertake a study of the status of the wintering population of White-headed Duck on the Salt Range Lakes in northern Pakistan. This should be undertaken in relation to its status on the breeding grounds in Central Asian States to determine the causes of its population decline, and to identify remedial measures for its conservation.

- Institute long term monitoring studies of climatic factors and their effect on the physical, chemical and biological characteristics of the Salt Range Lakes.

- Undertake a study on the status of the White-headed Duck on the Salt Range Lakes in relation to changes in physical, chemical and biological characteristics of the lakes to suggest appropriate habitat development to ensure the survival of the species.

- Undertake a satellite-tracking project to identify the migratory route and stopover sites along the flyway of the White-headed Duck.

- Strengthen staff capacity of protection agencies at the Salt Range Lakes to prevent illegal hunting of waterbirds which could lead to further population decline.

- Improve habitat conditions at the Salt Range Lakes, for example, afforestation in surrounding watersheds and restoration of water resources prevent silting of the lakes and further habitat loss.

- Provide training to local communities on efficient use of local fuels to minimise the use of vegetation cover at the Salt Range Lakes.

- Undertake public awareness raising programmes for villages around the Salt Range Lakes through organising local Community Based Organisations/Village Organisations (CBOs/VOs) to increase conservation awareness.

- Encourage development of sustainable ecotourism at the Salt Range Lakes to help improve the local economy.

- Ensure management of the Salt Range Lakes, on a Participatory/Benefit sharing basis, with the active involvement of local communities.

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8.9 RUSSIA (Asian part only)

8.9.1 Historical records and distribution

In the Russian Federation, the White-headed Duck is largely a breeding species of the lowland forest-steppe wetlands and is mainly recorded during the summer months. It occurs during spring and autumn months on migration across through the southwest of the country.

An overview of records of White-headed Duck in Asian part of Russia is summarised in Table 12. Breeding occurs to the east of the Urals in the Chelyabinsk Oblasts on the border of west Siberia and Kazakhstan, (BirdLife International 2001, Gordienko 1986). Breeding also takes place on the wetlands of the Tobol-Ishim Forest-steppe in the eastern part of Kurgan Oblast and in the southern part of the Tyumen Oblast in West Siberia (Krivenko 1999, Linkov 2001). However, the most important breeding area is now thought to be further east along the border, in the Kulunda and Baraba forest-steppes in Novosibirsk Oblast (BirdLife International 2001). The White-headed Duck is recorded as an occasional breeding species at the Chany Lakes and in the Lower Bagan area, 100-150 pairs were recorded in 1970 and 1971 (Krivenko 1999). Further eastwards it has been recorded breeding on Ubsu-Nur Lake in South Tuva on the Mongolian border (Zabelin *et al.* 2000) and it also occurred on the Tore-Khol Lake of this area (Krivenko 2000).

In the European part of Russia, breeding used to occur in the Sarpa lowlands between Volgograd and the Caspian and in the Volga/Ural Steppes. The species has also been recorded in the northern Caucasus and along the western coast of the Caspian, while the Manych Valley is a major spring and autumn migration site for the species (Green and Anstey 1992).

In Daghestan according to data gleaned from hunters, the White-headed Duck appears sometimes on the Caspian Sea and coastal water bodies in November-December. In the years from 1970 to 1980 in the central Caspian shore during winter, up to 300 birds have been recorded (Red Data Book of Republic of Daghestan 1998).

8.9.2 Recent records and distribution

Recently, White-headed Duck have been recorded breeding in many large waterbodies of the forest-steppe part of the Ural-Chelyabinsk Region. This includes Momynkul Lake, Zabaluevo Lake, Katai Lake,

Travyanoe Lake, Kurlady Lake and the lake near Cheraskul (Gordienko *et al.* 1986, Gordienko 1998, Gordienko 2001, Karyakin and Kozlov 1999, Karyakin 1998, Braude 1989). During 1992-1996, Karyakin *et al.* (1999) observed a total of 298 White-headed Duck (including ducklings) and 48 broods on 29 lakes of the forest-steppe Trans-Uralia. They calculated a breeding density of 2-7 pairs per 1km^2 in nest-suitable habitats and 2-10 pairs per 10km^2 over the total area. The main breeding area of the species in the Chelyabinsk region is situated within the border of the forest-steppe Trans-Uralia between 54°15'-56°05'N, 58°57'-61°30'E.

In the Sverdlovsk Region, the White-headed Duck is a rare vagrant. Braude (1989) gives information, based on the word of hunters, about sighting of the species near Nikol'skoe settlement (southern border of the Sverdlovsk Region). Karyakin *et al.* (1999) observed White-headed Duck at Chervyanoe Lake on 15 May 1995.

In the Omsk Region, 4 birds were sighted in the Stepnoi (steppe) Game Reserve: Ataich'ie Lake on 15 May 1997 in a mixed flock of Tufted Ducks *Aythya fuligula* and Pochards *Aythya ferina*. Furthermore, two pairs were spotted at Sylkino Lake at the end of May 1998 (Yakimenko 1998) and 7 birds on 21 May 2000 (Yakimenko V. V. unpublished).

In the Novosibirsk Region, White-headed Duck have been recorded breeding at Chany and Baganskiy Lakes during the summer of 1969-1989 (Gordienko *et al.* 1986). A. K. Yurlov (pers. comm., May 2002) has recorded White-headed Duck breeding in the summer in the Chany Lake, Fadiha Lake, Ulianovskoe Lake and Orlovka Village Lake since 1997.

The species was also recorded in Khakassia, to the southwest of the Krasnoyarsk Region, on Shira Lake and Belye Lake in the 1980s (Syroechkovski and Rogacheva 1995).

In the European part of Russia, in the Orenburg Region, 30 White-headed Duck were shot during the spring passage in the 1980s (Gordienko 1998) and one female was bagged by a hunter on 30 August 1999 at the sewage reservoir of the Svetlyi settlement (Korshikov and Kornev 1999).

On 27 October 1980, 1,200 White-headed Duck were counted on a 100km transect bisecting the Manych Lake and Manych-Gudilo Lake. Several pairs also occasionally breed in this area (Linkov 1984, Green and Anstey 1992).

Table 12: Records of the White-headed Duck in Asian part of Russia till 1980.

Date	No. of birds recorded	Site name and location	Remarks	Counter/source
15 May 1940	2	Chebarkul Lake, Ural (55°07'N, 60°35'E)	migrating	Observation by Migun N.N. (Gordienko N. S. pers. comm, April 2002)
May-Sep 1969-1989	230 pairs	Chany and Baganskiy Lakes, southwest Siberia, Russia. Presnovskiy and Mibalykskiy Lakes and Naurzumskiy Lakes in northern Kazakhstan	migrating and nesting[1]	Gordienko *et al*. 1986 Gordienko 1995, 1998
18 June 1969	1	Butash Lake, Chelyabinsk Region	male	Karyakin and Kozlov 1999
13 May 1972	2	Katai Lake, Ural	migrating	Gordienko 1998
1979	Female with chicks	Kulundinskoe Lake, Altaj krai, Novosibirsk Region (52°57'N, 79°43'E)		Kuchin 1991
23-25 August 1979	Flock	Gor'koe Lake, Altai Kari, Novosibirsk Region	moulting males	Irisov and Irisova 1982

Note: [1]The record refers to southern Russia and northern Kazakhstan

Table 13: Records of the White-headed Duck in Asian part of Russia, 1980-2002.

Date	No. of birds recorded	Site name and location	Remarks	Counter/source
May-Sep 1969-1989	230 pairs	Chany and Baganskiy Lakes, southwest Siberia, Russia. Presnovskiy and Mibalykskiy Lakes and Naurzumskiy Lakes in northern Kazakhstan	The record refers to southern Russia and northern Kazakhstan	Gordienko *et al*. 1986 Gordienko 1995, 1998
June 1980-2001	20	Kurlady Lake, Ural, Chelyabinsk Region	Nesting each year	Gordienko 2001
1980s	1	Travyanoe Lake, Chelyabinsk Region		Gordienko 1998
May 1980	5	Shira Lake, Krasnoyarsk Region		Rogacheva 1992
July-Aug 1985	20	Belye Lake, Krasnoyarsk Region		Syroechkovski and Rogacheva 1995
24 July 1987	2	Lake nr. Cheraskul , Chelyabinsk Region	Duckling	Braude 1989
Early Sep 1987	1	Momynkul Lake, Chelyabinsk Region	non-flying brood	Braude 1989
June 1990-1995	6	Zabaluevo Lake, Ural, Oktyabrskiy district, Chelyabinsk Region	nesting each year	Gordienko 2001
End May 1992	3 nests	Kurlady Lake, Chelyabinsk Region	birds with duckling	Karyakin and Kozlov 1999
July 1992	11	Kurlady Lake	Broods	Karyakin and Kozlov 1999
July 1992	7	Sykandyk Lake, Chelyabinsk Region	Broods	Karyakin and Kozlov 1999
July 1992	1	Katai Lake, Ural, Chelyabinsk Region	Brood	Karyakin and Kozlov 1999
July 1992	4	Treustan Lake, Chelyabinsk Region	Broods	Karyakin and Kozlov 1999
July 1992	2	Atkul Lake, Chelyabinsk Region	Broods	Karyakin and Kozlov 1999
July 1992	3	Selezyan Lake, Chelyabinsk Region	Broods	Karyakin and Kozlov 1999
July 1993	3	Tishki Lake, Chelyabinsk Region	Broods	Karyakin and Kozlov 1999
End May 1994	3 nests	Mayan and Alakul Lakes, Chelyabinsk Region		Karyakin and Kozlov 1999
July 1994	2	Dengino Lake, Chelyabinsk Region	Broods	Karyakin and Kozlov 1999
July 1994	1	Utich'ie Lake, Chelyabinsk Region	Broods	Karyakin and Kozlov 1999
July 1994	1	Kartabyz Lake, Chelyabinsk Region	Broods	Karyakin and Kozlov 1999
July 1994	3	Butash Lake, Chelyabinsk Region	Broods	Karyakin and Kozlov 1999
July 1994	5	Malyi Sarykul Lake, Chelyabinsk Region	Broods	Karyakin and Kozlov 1999
July 1994	2	Duvankul Lake, Chelyabinsk Region	Broods	Karyakin and Kozlov 1999
15 May 1995	Observed	Chervyanoe Lake, Sverdlovsk Region		Karyakin *et al.* 1999
27 May 1995	2 nests	Uelgi Lake, Chelyabinsk Region	birds with duckling	Karyakin and Kozlov 1999
27 May 1995	1 nest	M. Bugodak Lake, Chelyabinsk Region	birds with duckling	Karyakin and Kozlov 1999
1995 and 1997	Recorded	Chebarkul Lake, Chelyabinsk Region		Karyakin and Kozlov 1999; Karyakin 1998

Date	No. of birds recorded	Site name and location	Remarks	Counter/source
19 June 1996	1 nest	Tishki Lake	birds with duckling	Karyakin and Kozlov 1999
July 1996	2	Dengino Lake	Broods	Karyakin and Kozlov 1999
15 May 1997	4	Ataich'ie Lake, Omsk Region	2M+2F[1]	Yakimenko 1998
June 1997	1F	Chany Lake, Novosibirsk Region	non breeding	Yurlov A.K. and G.C.Boere, unpublished
Sep 1997	1M	Fadiha Lake, Zdvinskij district, Novosibirsk Region	killed by hunter	Yurlov A.K. unpublished
End May 1998	2 pairs	Sylkino Lake, Omsk Region		Yakimenko 1998
16 Sep 1998	10 (4F+6 chicks)	Ulianovskoe Lake, Baganskij district, Novosibirsk Region	hunting inspectors have also observed nesting birds at the site in 1995-96	Yurlov A.K. unpublished
21 May 2000	7 (4F+ 3M)	May-Sor Lake, Omsk Region	breeding behaviour observed	Yakimenko V. V. unpublished
5 June 2000	1M	Orlovka village Lake, Chistoozernij district, Novosibirsk Region	breeding behaviour observed	Yurlov A.K. unpublished

Note: [1] M - Male(s), F - Female(s)

During the summers of the 1987-1991, a few White-headed Duck were observed every year in the Vetelka settlement of the Saratov Region (Moseikin 2000). On the reservoirs on Sarpa lowland near Volgograd City, the total breeding number of the White-headed Duck in 1999-2001 is estimated at 75-100 pairs (Bukreev and Chernobay 2002). These ducks were also observed in small numbers during summer in Tsagan-Noor Lake (in the Kalmykia part of Sarpa Lowland) (Shubin 2001).

The current number on migration in Daghestan does not exceed 100 birds, 2 cases of White-headed Duck shootings are known from the Tarum and Derbent Districts (Jamirzoev, 1999). In 2001, the White-headed Duck is found breeding (8-11 pairs) in Adzhi Lake in Daghestan (Dzhamirzoev 2002).

An overview of records of White-headed Duck in Asian part of Russia is summarised in Table 13 and site locations are provided in Map 9.

8.9.3 Population and trends

Asian Part of Russia - A. K. Yurlov (pers. comm., June 2002) has suggested the decreasing trends of the White-headed Duck in the Baraba forest-steppe and Kulunda steppe, West Siberia. During the mid-1970s, there were about 80-150 pairs compared to 30-40 pairs today. The main cause has been recent drought conditions and a subsequent decrease in water levels in the lakes. Two long droughts have been experienced during the last 30 years in southwestern Siberia. However, there has also been an increase in human disturbance in many lakes (e.g. fishing, hunting and other activities).

In the other territories of the Asian part of Russia, Linkov (2001) has estimated the White-headed Duck population to be as follows:

- Tobol-Ishim forest steppe, and Chelyabinsk Region – a few pairs. Krivenko (1999) estimated that there were 5-50 pairs in this region whilst Gordienko (pers. comm., May 2002) suggested a total of 30 pairs in the Southern Ural in the 1990s.
- Tyumen region: 20-30 pairs.
- Khakassia and Tuva: 40-50 pairs

Map 9: Distribution of the White-headed Duck in the Asian part of Russia during 1980-2002.

No.	Site name	Location
1	Ataich'ie Lake, Omsk Region	54°30'N, 75°40'E
2	Baganskiy Lakes, southwest Siberia	54°09'N, 78°23'E
3	Belye Lake, Krasnoyarsk Region	54°40'N, 90°10'E
4	Chany Lakes, southwest Siberia	54°52'N, 77°27'E
5	Chebarkui Lake of Ural, Chelyabinsk Region	55°07'N, 60°35'E
6	Duvankul Lake, Chelyabinsk Region	54°40'N, 61°30'E
7	Fadiha Lake, Zdvinskij district, Novosibirsk Region	54°36'N, 78°12'E
8	Kartabyz Lake, Chelyabinsk Region	54°30'N, 62°30'E
9	Katai Lake, Ural, Chelyabinsk Region	55°04'N, 62°05'E
10	Kurlady Lake, Ural, Chelyabinsk Region	55°01'N, 61°05'E
11	Malyi Sarykul Lake, Chelyabinsk Region	54°50'N, 61°30'E
12	May-Sor Lake, Omsk Region	54°27'N, 75°38'E
13	Orlovka village Lake, Chistoozernij district, Novosibirsk Region	54°28'N, 76°39'E
14	Shira Lake, Krasnoyarsk Region	54°30'N, 90°10'E
15	Tishki Lake, Chelyabinsk Region	55°50'N, 61°40'E
16	Uelgi Lake, Chelyabinsk Region	55°40'N, 61°30'E
17	Ulianovskoe Lake, Baganskij district, Novosibirsk Region	54°08'N, 78°11'E
18	Zabaluevo Lake, Ural, Chelyabinsk Region	54°06'N, 63°00'E

European part of Russia

- Krivenko (2000) estimated 17-20 pairs on the lakes of the Sarpa lowland near Volgograd City. Bukreev and Chernobay (2002) believe there are 75-100 pairs from 1999 to 2001.
- Adzhi Lake in Dagestan, 8-11 pairs in 2001 (Dzhamirzoev 2002).

Linkov (2001) estimated that the total Russian breeding population of White-headed Duck was 170-230 pairs. However, Sergey Bukreev (pers. comm., October 2002) suggests the current estimate can be increased to a minimum of up to 300-500 pairs.

8.9.4 Conservation status

The species is included in the national Red Data Book (2001) as Endangered – 1 category (close to Extinction) and provincial (Chelybinskiy) Red List (in press) as threatened. Wildlife Law (1995) is concerned with protectoin of rare species in Russia (Linkov 2001). Hunting of White-headed Duck is illegal in Russia.

Some of most important sites for White-headed Duck are protected, mainly as non-hunting areas or "Zakazniks" (corresponding to IUCN category IV for protected areas). White-headed Duck occur in a total of 9 protected areas (with different protected status) in the Asian part of Russia and 5 in the European part.

Regular monitoring of summer numbers and distribution of White-headed Duck in the Chelyabinsk region and European part at Volgograd and Daghestan Regions are being conducted.

8.9.5 Threats

Poaching, particularly in Russia, seems not to be a significant problem. The population is declining perhaps due to habitat loss caused by river flow control and the natural cyclical decrease of steppe wetlands. The other limiting factor is that only a few birds participate in the breeding while most adult individuals remain non-breeding (Linkov 2001).

8.9.6 Recommendations

The following recommendations have been proposed primarily on the basis of information and feedback from government and non-government respondents to the survey.

- Undertake a survey and monitoring programme on the breeding grounds of White-headed Duck. This should include field work for checking of the previous breeding places in the Kurgan, Tyumen, Novosibirsk, Tuva and Khakassia Regions.

- Undertake a satellite-tracking project to identify migratory routes and stopover sites along the flyway of the White-headed Duck. The results will support efforts to develop and implement a comprehensive international species conservation action plan.

- Undertake a ringing (banding) project for the White-headed Duck to identify migratory routes and wintering sites in the flyway.

- Produce and disseminate relevant awareness raising materials targeted mainly at hunters on the need to conserve White-headed Duck and other threatened waterbirds.

- Provide training for game managers and rangers to enable them to identify White-headed Duck and to prevent from illegal capture.

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8.10 TAJIKISTAN

8.10.1 Historical records and distribution

In the beginning of the 20th century, White-headed Duck were recorded during the breeding season and on migration on lakes of Vakhsh River Valley (approximately 37°15'N, 68°50'E), southwestern Tajikistan, and in Syr Darya River Valley (approximately 40°20'N, 70°00'E), northern Tajikistan (Ivanov 1940, Ivanov 1969, Isakov 1952, Abdusalamov 1971).

8.10.2 Recent records and distribution

Over the last 30 years there has not been a single record about this species in Tajikistan. However Islom Abdusalamov (1971 and pers. comm., September 2002) considers that the White-headed Duck is a very rare species in Tajikistan and may occur in small numbers on freshwater and brackish lakes with reed brakes and open stretches. It may occur in the Syr Darya and Zerafshan Valleys of northern Tajikistan and in Vakhsh, Pyanj and Kafirnigan river basins of southwestern Tajikistan.

8.10.3 Population and trends
The population of breeding pairs is likely to be decreasing because most former habitats have been developed for agriculture and therefore have become unsuitable for White-headed Duck.

8.10.4 Conservation status
Due to the unclear status of the White-headed Duck in Tajikistan, it was not included in the Red Data Book of Tajikistan (1988).

The accession of Tajikistan to the Convention on Wetlands in 2002 offers opportunities of greater international collaboration and resource mobilisation to undertake wetland and waterbird related conservation work.

8.10.5 Threats
Agricultural development in wetlands and hunting of waterbirds are reported as a general threat in many parts of the country.

8.10.6 Recommendations
The following recommendations have been proposed primarily on the basis of information and feedback from government and non-government respondents to the survey.

- Conduct survey activities in the southwest and northern parts of the country to improve the understanding of the status and distribution of White-headed Duck.

- Protect key sites for White-headed Duck from hunting and other disturbances and changes in ecological character of the wetlands.

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8.11 TURKMENISTAN

8.11.1 Historical records and distribution
The White-headed Duck is a common wintering species and passage migrant in Turkmenistan. Historically, birds normally winter and migrate through the southeastern part of the country, along the coast of the Caspian Sea and nearby inland lakes. In February 1932, 47,080 birds were recorded in the Southeast coast of the Caspian Sea (Laptev *et al*. 1934) (See Table 14). The White-headed Duck was also common in these sites in the winter of 1935-1939, and groups of 400-500 birds were regularly observed in Krasnovodsky Bay during southward migration (Isakov and Vorobyev 1940). Other wintering sites have been recorded along the valleys of Amu Darya, Tezhen and Murgab Rivers since at least the 1950s. The peak count of White-headed Duck during the mid-winter waterbird census for the region was 850 in 1974, with 600 at Kelif Lake (Green and Anstey 1992).

Southward migration along the coast of Turkmenistan and the Western Uzboy River Valley starts in October. Key staging sites include the Krasnovodsky and Severo-Chelekensky and Becovich Bays. Northward migration takes place mainly between 11 February to 18 March (Vasilyev and Gauser 2001).

Dementiev and Gladkov (1952) mentioned records of White-headed Duck breeding along the shores of the Lower Amu Darya and Tedzhen/Murgab rivers.

8.11.2 Recent Records and distribution
The most recent surveys for the species were conducted by M. E. Gauser and V. I. Vasilyev, and the results are provided below. From 1986 onwards, most birds have been found at Krasnovodsky and Severo-Chelekensky Bays (86-100% of birds). A total of 820 White-headed Duck were counted in January 1998 along the coast of the southeastern Caspian between Carabogasgol and Gasankuly, where 723 birds were also counted in November 2001 (Vasilyev and Gauser 2001).

Table 14: Records of the White-headed Duck in Turkmenistan till 1980.

Date	No. of birds recorded	Site name and location	Remarks[1]	Counter/source
Feb 1932	47,080	Southeast coast of Caspian Sea		Laptev *et al.* 1934
Jan 1937	500	Krasnovodsky Bay, Caspian Sea		Isakov and Vorobjev 1940
Jan 1973	490	Mainland lakes/rivers		Poslavski 1992
Jan 1974	850	Mainland lakes/rivers	600 at Kelif Lake	Poslavski 1992
Jan 1974	About 200	Reservoir in the Kara-Kum desert		Vasilyev *et al.* 1984
25 Sep 1975	44	Krasnovodsky Bay, Caspian Sea	groups of 3-5 birds and individuals	Vasilyev *et al.* 1984
Jan 1976	373	Lakes/rivers of mainland Turkmenistan		Poslavski 1992
Jan 1977	6	Maloye Delili Lake in the lower Atrek (37°30'N, 54°28'E)		Poslavski 1992
10 Nov 1977	208	Severo-Chelecensky Bay, Caspian Sea	4 flocks: 1M+F, 2-4M+14F, 3-5F, 4-30% male	Vasilyev *et al.* 1984
Jan 1978	22	Mainland lakes/rivers		Poslavski 1992
11 Jan 1978	73	Krasnovodsky and Severo-Chelecensky Bay, Caspian Sea	13 flocks (1–19 birds) and individual birds	V.I.Vasilyev count. Ataev *et al*. 1978
Jan 1979	21	Mainland lakes/rivers		Poslavski 1992
11 Feb 1979	82-flight	Krasnovodsky and Severo-Chelecensky Bay	2 flocks	Vasilyev and Gauzer 2001

Note: [1] M - Male(s), F - Female(s)

Breeding has been formerly recorded along the middle Amu Darya at Soltantagt Lake in eastern Turkmenistan during 1984-1991, where 5-6 broods of ducklings were seen in May 1987 and 19 breeding pairs were recorded in 1989. However, no birds have been recorded in this area in winter (Poslavski 1992, Green 1992). Further more, M. E. Gauzer (pers. comm., May 2002) has also recorded a pair of White-headed Duck nesting at the Krasnovodsky Bay of the Caspian Sea during 21-22 May 1982 and 8 birds in the area in April 2002.

An overview of records of White-headed Duck in Turkmenistan is summarised in Table 15 and site locations are provided in Map 10.

8.11.3 Population and trends

In the latter half of the 20th century, White-headed Duck numbers have fallen from a maximum of 47,080 birds recorded in February 1932. In autumn-winter 1972-1978, records of peak annual counts were 170-600 birds (Ataev *et al*. 1978), while from 1988 onwards, peak counts were down to 19-820 birds (Vasilyev and Gauser 2001). No conclusion can be drawn on the trend or status of breeding populations at this time due to inadequate information (M. E. Gauser and V. I. Vasilyev, pers. comm., May 2002).

8.11.4 Conservation status

The White-headed Duck is listed as an uncommon species in the second edition of the national Red Data Book (1999).

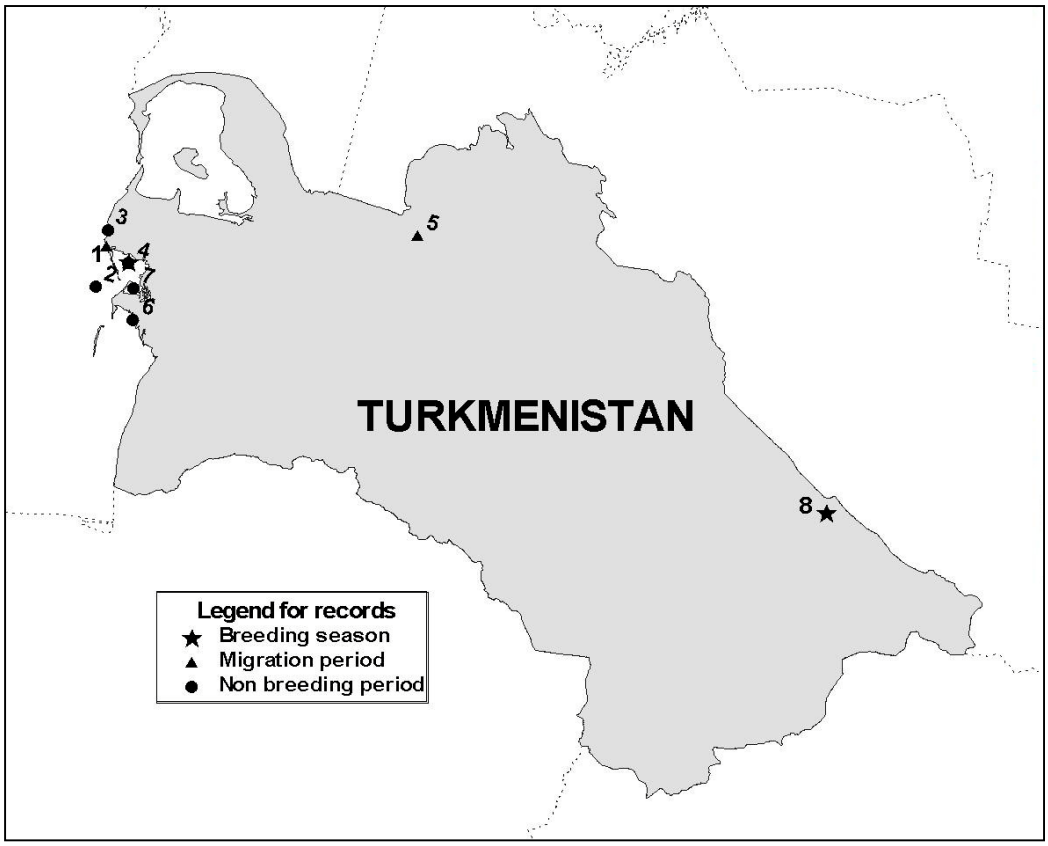
Legislation and regulations relating to White-headed Duck in Turkmenistan include: Act about preservation and rational usage of fauna (1997); Act about Protected Areas (1992); The Model Statute about "Governmental Nature Reserves of Turkmenistan" (1994); The Model Statute about Governmental Arboretums of rare and threatened animals and plants in Turkmenistan (1995); Completion of a "National Action Plan on Biodiversity Conservation in Turkmenistan" (2002) and "National Caspian Action Plan" (in preparation). No White-headed Duck have been ringed in Turkmenistan, although more than 50,000 other waterbirds have been marked as part of migration studies.

Table 15: Records of the White-headed Duck in Turkmenistan, 1980-2002.

Date	No. of birds recorded	Site name and location	Remarks	Counter/source
11 Feb 1980	3 in flight	Balkhan Bay, Caspian Sea		Vasilyev and Gauzer 2001
30 Nov 1980	930 in flight	Sarakamysh Lake	6 flocks	Vasilyev and Gauzer 2001
Nov 1981	450	Entire eastern Caspian coastline	21 small flocks	Vasilyev and Gauzer 2001
21-22 May 1982	2	Krasnovodsky Bay, southeast Caspian Sea	nesting site (1M+1F)	Vasilyev and Gauzer 2001
Jan 1983	1	Mainland lakes/rivers		Poslavski 1992
Dec 1984	64	Becovich Bay, southeast Caspian Sea	1 flock	Vasilyev and Gauzer 2001
Jan 1985	17	Mainland lakes/rivers		Poslavski 1992
Jan 1986	636	Mainland lakes/rivers		Poslavski 1992
Jan 1987	103	Mainland lakes/rivers		Poslavski 1992
1986-1988	100-200	Sarakamysh Lake	On migration	Poslavski 1992
1 Apr 1987	5	Sarakamysh Lake		Poslavski 1992
May 1987	5-6	Soltantagt Lake, Middle Amu Darya River	Broods of duckling	Poslavski 1992
Jan 1988	37	Krasnovodsky Bay, southeast Caspian Sea	1 flock	Vasilyev and Gauser 2001
Jan 1988	358	Mainland lakes/rivers		Poslavski 1992
Summer 1989	19 pairs	Soltantagt Lake, Middle Amu Darya River		Poslavski 1992
Jan 1991	223	Krasnovodsky, Balhansky, Severo-Chelecensky Bays, southeast Caspian Sea	9 flocks	Vasilyev and Gauser 2001
Jan 1993	3	Turkmenistan (unspecified)		Rose and Taylor 1993
14 Oct 1993	120 in flight	Tarta sea shoal, southeast Caspian Sea		Vasilyev and Gauser 2001
28 Oct 1993	127 in flight	Balkhan Bay, Tarta Cape, southeast Caspian Sea		Vasilyev and Gauser 2001
12-27 Oct 1994	313 in flight	Krasnovodsky Bay, southeast Caspian Sea	11 flocks (9-50 individuals)	Vasilyev and Gauser 2001
18 Mar 1995	230 in flight	Krasnovodsky Bay, southeast Caspian Sea	6 flocks (14-43)	Vasilyev and Gauser 2001
Jan 1998	820	Southeast coast of Caspian Sea, between Karabogasgol – Gasankuly		Vasilyev and Gauser 2001
Jan 1998	171	Southeast coast of Caspian Sea, between Karabogasgol – Gasankuly		Vasilyev 2000
Jan 1999	7	Kianly Bay, southeast Caspian	1 flock	Vasilyev 2000
Nov 1999	268	Southeast coast of Caspian Sea, between Karabogasgol – Gasankuly		Vasilyev 2000
Jan 2000	19	Krasnovodsky Bay, southeast Caspian Sea	3 flocks (3,5,11)	Vasilyev 2001
Nov 2000	476	Southeast coast of Caspian Sea, between Karabogasgol – Gasankuly	9 flocks (9 –72)	Vasilyev 2001
Nov 2001	723	Southeast coast of Caspian Sea, between Karabogasgol – Gasankuly	16 flocks (7–55)	Vasilyev 2001
Jan 2002	21	Southeast coast of Caspian Sea, between Karabogasgol – Gasankuly	3 flocks (3–14)	V.I.Vasilyev, pers. comm., May 2002
Apr 2002	8	Krasnovodsky Bay, southeast Caspian Sea	At nesting site	M.E.Gauser, pers. comm., May 2002

Note: [1] M - Male(s), F - Female(s)

Map 10: Distribution of the White-headed Duck in Turkmenistan during 1980-2002.



No.	Site Name	Location
1	Balkhan Bay, Caspian Sea	40°01'N, 52°48'E
2	Becovich Bay, southeast Caspian Sea	39°32'N, 52°50'E
3	Kianly bay, southeast Caspian Sea	40°12'N , 52°44'E
4	Krasnovodsky Bay, southeast Caspian Sea	39°42'-40°02'N, 52°53'-53°32'E
5	Sarakamysh Lake	41°50'-42°20'N, 56°52'-57°50'E
6	Southeast coast of Caspian Sea, between Karabogasgol - Gasankuly	37°23'-41°08'N, 52°60'-53°59'E
7	Severo-Chelecensky Bay, southeast Caspian Sea	39°33'-39°42'N, 53°14'-53°30'E
8	Soltantagt Lake, southern Turkmenistan	38°47'N, 64°15'E

8.11.5 Threats

The threats reported to the White-headed Duck and its wetlands are based on information and feedback from government and non-government respondents to the survey.

- Hunting, poaching and inadequate capacity of conservation agencies.
- Increasing industrial and recreational pressure on wetlands, which have caused disturbance and degradation of the habitat.
- Drought in the last few years affecting water levels in wetlands.
- Lack of funds being allocated for research, awareness and conservation of waterbirds and wetlands.
- Lack of national experts in the field of species protection capable of providing quality information to manage wetlands and waterbirds.

8.11.6 Recommendations

The following recommendations have been proposed primarily on the basis of information and feedback from government and non-government respondents to the survey.

- Conduct regular surveys and monitoring programmes for the important habitats of wintering and breeding White-headed Duck.
- Establish protected areas for White-headed Duck and other migratory waterbirds at key sites along the coasts of the Caspian Sea and Amu Darya and Karakum Darya River Valleys.
- Enhance nature conservation and water management at national and local levels to ensure water availability for White-headed Duck and other migratory waterbirds.
- Produce and disseminate posters and other awareness materials related to the protection of the White-headed Duck and its key wetlands.
- Increase exchange of information on White-headed Duck and other waterbirds amongst researchers and government officials to enable improved conservation measures to be undertaken on the basis of up to date knowledge.
- Conduct training programmes for hunters, researchers, and managers and rangers of protected areas (nature reserves) on wetland and waterbird conservation, and identification of White-headed Duck and other waterbirds.
- Involve students in wetland and waterbird conservation activities to ensure greater grassroot support and awareness.

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8.12 UZBEKISTAN

8.12.1 Historical records and distribution

In the past, the White-headed Duck was recorded as a breeding and passage migrant through Uzbekistan (Kashkarov 1987) (See Table 16). During northward migration, White-headed Duck were recorded in March on the Syr Darya River, near Chinaz Town and in April at Zeravshan and the Fergana Valley. During southward migration, they have been observed at the Khoresm Lakes, in the middle reaches of the Syr Darya River. There is only one historic record of wintering White-headed Duck in Uzbekistan – a bird found shot in the middle reaches of the Syr Darya River on 12 January 1966 (Kashkarov 1987). In recent years, small flocks of White-headed Duck have been found wintering in Aydarkul Lake (Nazarov unpublished).

A few historic records during the breeding season exist: one pair seen at a small saline lake near the northern foothills of the Nuratau mountains in July 1936 (Meklenburtcev 1937) and one bird was found shot at the Rogatoe Lake, near Uchkuduk Town in the Central Kyzylkum Desert on 17 August 1982 (Minaev 1987).

8.12.2 Recent records and distribution

Between autumn 1999 and summer 2001, comprehensive data on the ecology and numbers of White-headed Duck at the Sudochye Wetlands have been collected by staff of the Institute of Zoology of Uzbek Academy of Sciences. Six expeditions have monitored numbers and distribution of White-headed Duck at the Sudochye Wetlands during the recent drought in Central Asia.

Notable breeding and migrating populations of White-headed Duck have been discovered on Akushpa Lake, that forms a part of the Sudochye Wetlands. A concentration of more than 3,000 individuals were also found during southward migration in 1999 (Kreuzberg-Mukhina and Lanovenko 2000, Kreuzberg-Mukhina *et al*. 2001). In mid April 2000, there were 1,166 birds at the lake and in July 2000, there were

more than 2,835 birds with 35 broods. However by autumn 2000, the effects of the drought (which began in the wetlands of Amu Darya Delta in 2000) started to affect White-headed Duck numbers. During autumn 2000, the number of White-headed Ducks was less than half of that in the previous year.

Table 16: Records of the White-headed Duck in Uzbekistan till 1980.

Date	No. of birds recorded	Site name and location	Counter/source
March 1888	Migrating flocks	Middle reaches of Syr Darya River, near Chinaz Town (40°54'N, 68°42'E)	Pleske 1888
	Rare	Middle reaches of of Amu Darya River, near Chardjou and Dargan-ata (40°28'N, 62°09'E)	Zarudny 1896
22-24 March 1903	Flocks	Zeravshan River, near Kermine and Ziatdin (40°08'N, 65°02'E)	Loudon 1910
4-10 April 1903	Migrating birds	Zeravshan River, near Kermine and Ziatdin	Loudon 1910
18 April 1903	Many	Fergana Valley, Station Melnikovo (40°10'N, 69°12'E)	Loudon 1910
July 1936	2 (one pair)	Saline lake on the northern foothills near Nuratau mountain (40°32'N, 67°25'E)	Meklenburtcev 1937
8-10 Oct 1957	Two flocks of 6 and 20 birds	Lower reaches of Amu Darya River, Khoresm district, lakes near Khazarasp Town (42°01'N, 61°01'E)	Salikhbaev and Bogdanov 1961
End Oct 1963	Single birds	Dalverzin Lakes, middle reaches of Syr Darya River (40°06' N, 69°04'E)	Kashkarov 1983
12 January 1966	1 bird shot	Dalverzin Lakes, middle reaches of Syr Darya River	Kashkarov 1987

Data collected from rangers, hunting inspectors and hunters, suggested the White-headed Duck left Akushpa Lake in November after it started to freeze over. The first White-headed Duck return to the lake at the end of February and beginning of March depending on when the ice thaws. During migration, White-headed Duck can be observed on other lakes of the Sudochye Wetlands, but during the breeding season, all ducks only gather at the Akushpa Lake.

An overview of records of White-headed Duck in Uzbekistan is summarised in Table 17 and site locations are provided in Map 11.

8.12.3 Population and trends

At present, the population trend of White-headed Duck breeding in Uzbekistan in the southern section of the Aral Sea region depends mainly on climate conditions, especially the abundance of precipitation in Central Asia and management of the drainage system. Historically, local wetlands were supported by floodwaters from the Amu Darya River. The number of birds appears to depend on the natural conditions and management system of wetlands, but primarily on the irrigation system in the case of the wetlands in the Aral Sea region. Poor precipitation in the Aral region can not provide sufficient water for the stability of reservoirs (Evgeniya Lanovenko, pers. comm., May 2002; Elena Kreuzberg-Mukhina, pers. comm., May 2002).

The number of White-headed Duck had increased between 1999 and 2001, but have since declined. This decline is expected to continue for the next several years, because the main habitats are affected by natural and anthropogenic factors – drought and abstraction of water for agriculture. An increase in the number of White-headed Duck was noted in 1930 by N.A. Formozov (Isakov 1952), who observed that the number of White-headed ducks increased in the years of drought and decreased in the years with sufficient water which accounts for the distribution of the small groups within the small shallow lakes (Elena Kreuzberg-Mukhina, pers. comm., May 2002).

Table 17: Records of the White-headed Duck in Uzbekistan, 1980-2002.

Date	No. of birds recorded	Site name and location	Remarks	Counter/source
17 Aug 1982	1	Rogatoe Lake, near Uchkuduk Town, central Kyzylkum Desert	Bird shot	Minaev 1987
17 Oct 1999	40	Akushpa Lake, Sudochye Wetlands, southwest shore of Aral Sea	One flock, feeding in western part of the lake	Kreuzberg-Mukhina *et al.* 2001
20 Oct 1999	450	Akushpa Lake	Small flocks (7-30 birds)	Kreuzberg-Mukhina *et al.* 2001
21 Oct 1999	More than 3,000	Akushpa Lake	Small flocks (7-50) and two large flocks of 800+1500 birds	Kreuzberg-Mukhina *et al.* 2001
11 Jan 2000	1,137	Dengizkul Lake, S. Uzbekistan, near Turkmenistan border	Aerial count. Groups (575 birds, 200, 107, 175 and 85)	Lanovenko *et al*. 2000; Kreuzberg-Mukhina *et al.* 2001
3 Feb 2000	185	Dengizkul Lake	Aerial count. In one bay in small groups	Kreuzberg-Mukhina *et al.* 2001
5 Apr 2000	1 female	Aydar Lake	Last migratory species observed	Kreuzberg-Mukhina *et al.* 2001
8 Apr 2000	2 female	Tudakul Lake	Last migratory species observed	Kreuzberg-Mukhina *et al.* 2001
16-20 Apr 2000	1,166	Akushpa Lake	Small groups and pairs. Three flocks of up 90-230 birds	Kreuzberg-Mukhina *et al.* 2001
2-5 Jul 2000	2,835	Akushpa Lake	Females, ducklings, young non-flying individuals and flocks dominating males (500+800). Over 35 broods.	Kreuzberg-Mukhina *et al.* 2001
18-20 Oct 2000	1,370 birds	Akushpa Lake	Biggest flocks 230-380 birds.	Kreuzberg-Mukhina *et al.* 2001
2-5 April 2001	2,835 birds	Akushpa Lake	Small groups, about several hundred birds each. The largest flock of 600 birds.	Lanovenko *et al.* in preparation
3-6 July 2001	1,149	Akushpa Lake	In groups. Two flocks of 250-300. Broods were not recorded	Lanovenko *et al.* in preparation
19-23 Oct 2001	9	Karateren Lake, Akushpa Lake, Ustyurt collector, Sudochye Wetlands	Small groups. Karateren Lake 5 birds, Akushpa Lake 2, Ustyurt collector 2	Counted by Evgenia Lanovenko and Elena Kreuzberg-Mukhina, pers. comm. 2002
Nov 2001	Several tens	Aydar Lake	Small migratory flocks	Nazarov unpublished
26 Dec 2001	5	Tuzkan Lake and Aydar Lake	Feeding in the bays	Kreuzberg-Mukhina *et al*. 2002
27 Jan 2002	3	Dengizkul Lake	With other ducks	Kreuzberg-Mukhina *et al*. 2002
28 Jan 2002	6	Deukhona Lake	Flying flock	Kreuzberg-Mukhina *et al*. 2002
Nov - Feb 1997-2002	Several tens	Aydar Lake	Small flocks of 3-5 birds, 2 birds shot by hunters	Nazarov unpublished
7-17 Apr 2002	60	Akushpa Lake, Begdulla-Aydyn Lake, Ustyurt collector, Sudochye Wetlands	Migratory flocks. Akushpa Lake 27 birds, Begdulla-Aydyn Lake 30, Ustyurt collector 3.	Elena Kreuzberg-Mukhina, pers. comm. 2002
Oct 2002	700	Sudochye Wetlands		Elena Kreuzberg-Mukhina, pers. comm. 2002

Map 11: Distribution of the White-headed Duck in Uzbekistan during 1980-2002.

No.	Site name	Location
1	Sudochye Wetlands (Akushpa Lake, Karateren Lake, Begdulla-Aydyn Lake and Ustyurt collector)	58°30'N, 43°14'E
2	Aydar Lake	40°53'N, 66°35'E
3	Dengizkul Lake, south Uzbekistan, near border with Turkmenistan	39°07'N, 64°10'E
4	Deukhona lake	39°12'N, 64°39'E
5	Rogatoe Lake, near Uchkuduk town, Central Kyzylkum Desert	42°02'N, 63°37'E
6	Tudakul Lake	39°52'N, 64°46'E
7	Tuzkan Lake	40°37'N, 67°11'E

8.12.4 Conservation status

The White-headed Duck is protected under the Law of the Republic of Uzbekistan on protection and usage of animals (December 1997).

The White-headed Duck is included in the national Red Data Book (1983) as a "probably extinct species" in Central Asia. With the recent observations on the status of the species, in the new edition of the Red Data Book (in press), it is to be listed as an Endangered species. The Red Data Book of Uzbekistan is a judicial document, which provides direct protection for all listed species.

The national hunting regulations prohibit the hunting of White-headed Duck, with high fines being imposed for the violation of this regulation.

The most important sites for White-headed Duck in Uzbekistan are the Sudochye Wetlands and Dengizkul Lake. Both these sites are non-hunting areas or "Zakaznik" (this designation corresponds to IUCN category IV for protected areas). Additionally, Dengizkul Lake was designated as a Ramsar Site in February 2002.

The process of producing regional and national action plans on the threatened species is now ongoing, and it is proposed that based on a regional action plan, a national action plan will be produced.

8.12.5 Threats

Recent work in Sudochye Wetlands and other sites by Elena Kreuzberg-Mukhina, Evgenia Lanovenko and colleagues have provided up to date information on current threats to the White-headed Duck in Uzbekistan. Their findings are summarised below:

- Changes in hydrological regime: The key sites for White-headed Duck in Uzbekistan have no stable hydrological regime. The Sudochye Wetland is under threat of drying out completely due to a combination of the change in the water-regime in the Aral Sea basin and the ongoing extended drought in Central Asia. In the summer of 2001, the Sudochye Wetland was completely dry while Akushpa Lake had changed into a swamp. In the winter and spring of 2002, the lake received some water as precipitation but drainage water arrived into the lake only in July. So, in the breeding season of 2002 there was not enough water in the lake and young reeds did not grow. As a result of this, the lake could not provide sufficient habitats for the White-headed Duck. Historically, during the 20th century, the Sudochye Wetland has some times dried up and it has changed from a fresh water lake to contain saline water. Dengizkul Lake has turned saline and is drying up. Changes have taken place in the drainage system which is feeding water into this lake. These changes are linked with the implementation of a large-scale project, the aim of which is to improve the drainage system in Uzbekistan and water quality in Amu Darya River (and for irrigation, as outlined below).

- Over-abstraction of water: The Sudochye Wetland is under threat of drying out completely due to a combination of the change in the water-regime in the Aral Sea basin and the ongoing extended drought in Central Asia. In the winter of 2001, the Sudochye Wetland was completely dry and Akushpa Lake had changed into a swamp. Dengizkul Lake has turned saline and is drying up, because the water sources that fed it are being used for irrigation purposes in the desert villages located close to the Amu Darya River.

- Climatic effects: It is possible that future natural climatic cycles, exacerbated by the effects of global warming, will have an impact the ecological conditions of the White-headed Duck habitat.

- Burning of reed beds: Burning of reed beds in the spring season is also a major threat to the habitat of White-headed Duck and other reed-nesting species. The main reason for reed burning by local people is to clean up old plants and to ensure the better growth of young ones, which they use as cattle fodder.

8.12.6 Recommendations

The following recommendations have been proposed primarily on the basis of information and feedback from government and non-government respondents to the survey.

- Develop a national action plan for the White-headed Duck.

- Conduct surveys at potential sites to determine a more accurate status of the White-headed Duck in Uzbekistan.

- Promote wise use of water resources at the two most important wetlands for White-headed Duck.

- Create specially protected areas at key breeding, migratory and staging sites for the White-headed Duck in Uzbekistan.

- Improve the monitoring and management system of wetlands in Uzbekistan to ensure that qualitative and quantitative information can be obtained on an ongoing basis.

- Distribute information on the conservation of White-headed Duck through the media and through local education campaigns.

- Undertake awareness raising initiatives amongst local hunters to increase their understanding of the threatened status of White-headed Duck and other species and the need for their conservation.

- Undertake an education programme for rangers and inspection staff on wetlands and waterbirds to raise awareness and skills to conserve threatened species.

- Increase capacity among nature protection agencies and other conservation bodies (NGOs, local communities, etc.) to ensure conservation work on wetlands and waterbirds can be undertaken at the national and local levels.

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Appendix A: List of all sites with White-headed Duck records in the Central Asian region, 1980-2002

Country	Site name and location	Coordinates	Breeding season	Migration period	Non breeding period	Maximum number of birds recorded and year
China	Akto, Near Kashi City, western Xinjiang Autonomous Region	39°10'N, 76°00'E		X		Some specimens duirng 1981-1988
	Ordos, Inner Mongolia Autonomous Region	39°48'N, 109°20'E		X		1 in 1999
	East Dongting Lake, Hunan Province	29°27'N, 112°48'E			X	1 in 2001
India	Amakhera wetland, Uttar Pradesh	27°31'N, 78°19'E			X	1 in 1997
	Harike Lake, Punjab	31°10'N, 75°00'E		X		1 in 1984
Iran	Alagol Lake, Mazandaran	37°21'N, 54°35'E			X	534 in 2002
	Arjan, Fars Province	29°37'N, 51°59'E			X	37 in 1994
	Bozojigh, Eastern Azerbaijan	37°27'N 46°46'E	X	X		88 in 1998
	Bur Alan, West Azerbaijan	39°40'N, 44°45'E			X	7 in 2002
	Chaghakhor, Upper Karun River, Zagros Mountains	31°55'N, 50°54'E		X		10 in 1997
	Gandoman, Upper Karun River, Zagros Mountains	31°50'N, 51°07'E		X		6 in 1997
	Ghorigol, Eastern Azerbaijan	37°55'N, 46°42'E	X			108 in 1998
	Gorgan Bay, Mazandaran	36°52'N 53°53'E			X	7 in 1991
	Gorgor, south Iran	Approx 31°30'N, 48°30'E	X			4 in 1997
	Haftbarm, Fars Province	29°40'N, 52°10'E			X	12 in 1993
	Helleh Region	29°09'N, 50°55'E			X	173 in 1988
	Izeh, northeast of Ahwaz, Khuzestan Province	31°54'N, 49°52'E			X	17 in 1996
	Miankaleh Protected Area, southeast Caspian Sea, Mazandaran	36°50'N, 53°45'E			X	50 in 2002
	Parishan Lake, Zagros Mountains, Fars Province	29°31'N, 51°48'E			X	52 in 1993
	Tashk and Kamjan, Fars Province	29°40'N, 53°30'E			X	26 in 1999
	Ulma Gol Lake, Mazandaran	37°25'N, 54°38'E			X	1,450 in 1995
	Yanigh, Eastern Azerbaijan,	37°25'N, 46°59'E	X			17 in 1996
	Zoulbin, Eastern Azerbaijan,	37°27'N 46°51'E	X			45 in 1998
Kazakhstan	Alakol Lake, east Kazakhstan	45°59' N, 81°28'E	X			6 in 1998
	Kaldykol and Biyikkol Lakes	43°N, 70°30'E	X			2 in 2001
	Kamysh-Samara Lakes	48°54'-48°57'N, 49°34'-49°42'E	X	X		490 in 186
	Korgalzhyn-Tengiz Lakes Region (Kokai, Kumkol, Kysylkol, Kumdykol, Nygis, Saumalkol, Sholak and Zhumaj Lakes)	50°10'-50°50'N, 68°40'-71°00'E	X	X		4,021 in 2002

Country	Site name and location	Coordinates	Breeding season	Migration period	Non breeding period	Maximum number of birds recorded and year
Kazakhstan	Kyzylkol Lake, south Kazakstan	43°44'N, 69°30'E	X	X		2,838 in 2001
	Naurzumskiy Lakes	Approx 51°30N, 64°00E	X			230 pairs with other lakes in southern Russia and northern Kazakhstan 1969-1989
	Presnovskiy and Mibalykskiy Lakes	approximately 54°N, 70°E	X			230 pairs with other lakes in southern Russia and northern Kazakhstan 1969-1989
	Sorbulak Lake, Almaty, southeast Kazakstan	43°36'N, 76°47'E		X		6 in 2001
Mongolia	Chono Kharaikh Riverl Delta/ Khar Lake	approximately 48°05'N, 93°10'E	X			2 in 1995
	Hodoo Lake, near Zereg	approximately 47°10'N, 92°50'E	X			1 in 1995
	Khar Us Lake (southern section)	47°45'- 48°23'N 91°57'- 92°49'E	X	X		238 in 1998
	Khayrgas Lake	48°58'- 49°20'N 92°48'- 93°48'E	X			8 in 1981
	Olon Lake, Bulgan	49°52'N, 102°38'E	X			5 in 2001
	Uvs Lake (Shuvuun Tsuglaan Lake, west Uvs Lake, 50°12'N, 92°10'E; Jiree and Tes river mouth, east Uvs Lake 50°25'N, 93°05'E)	49°59'- 50°41'N 92°13'- 93°25'E	X			"Large colony" in 2000
Pakistan	Jahlar Lake	32° 29'N, 72°07'E			X	132 in 1988
	Khabekki Lake	32° 37'N, 72° 14'E			X	734 in 1983
	Kharal Lake	30°53'N, 73°35'E			X	48 in 1987
	Ucchali Lake	32° 33'N, 72° 01'E			X	620 in 1987
Russia	Ataich'ie Lake, Omsk Region	54°30'N, 75°40'E	X			4 in 1997
	Atkul Lake, Chelyabinsk Region		X			2 in 1992
	Baganskiy Lakes, southwest Siberia	54°09'N, 78°23'E	X			230 pairs with other lakes in southern Russia and northern Kazakhstan 1969-1989
	Belye Lake, Krasnoyarsk Region	54°40'N, 90°10'E	X			20 in 1985
	Butash Lake, Chelyabinsk Region		X			3 in 1994

Country	Site name and location	Coordinates	Breeding season	Migration period	Non breeding period	Maximum number of birds recorded and year
Russia	Chany Lakes, southwest Siberia	54°52'N, 77°27'E	X			230 pairs with other lakes in southern Russia and northern Kazakhstan 1969-1989
	Chebarkul Lake, Ural, Chelyabinsk Region	55°07'N, 60°35'E	X			Recorded in 1995 and 1997
	Chervyanoe Lake, Sverdlovsk Region		X			Observed in 1995
	Dengino Lake, Chelyabinsk Region		X			2 in 1996
	Duvankul Lake, Chelyabinsk Region	54°40'N, 61°30'E	X			2 in 1994
	Fadiha Lake, Zdvinskij District, Novosibirsk Region	54°36'N, 78°12'E	X			1 in 1997
	Kartabyz Lake, Chelyabinsk Region	54°30'N, 62°30'E	X			1 in 1994
	Katai Lake, Ural, Chelyabinsk Region	55°04'N, 62°05'E	X			1 in 1992
	Kurlady Lake of Ural, Chelyabinsk Region	55°01'N, 61°05'E	X			20 in 1980-2001
	Lake near Cheraskul , Chelyabinsk Region		X			2 in 1987
	M. Bugodak Lake, Chelyabinsk Region		X			1 in 1995
	Malyi Sarykul Lake, Chelyabinsk Region	54°50'N, 61°30'E	X			5 in 1994
	May-Sor Lake, Omsk Region	54°27'N, 75°38'E	X			7 in 2000
	Mayan and Alakul Lakes, Chelyabinsk Region		X			3 in 1994
	Momynkul Lake, Chelyabinsk Region		X			1 in 1987
	Orlovka village Lake, Chistoozernij district, Novosibirsk Region	54°28'N, 76°39'E	X			1 in 2000
	Selezyan Lake, Chelyabinsk Region		X			3 in 1992
	Shira Lake, Krasnoyarsk Region	54°30'N, 90°10'E	X			5 in 1980
	Sykandyk Lake, Chelyabinsk Region		X			7 in 1992
	Sylkino Lake, Omsk Region		X			4 in 1998
	Tishki Lake, Chelyabinsk Region	55°50'N, 61°40'E	X			3 in 1993
	Treustan Lake, Chelyabinsk Region		X			4 in 1992
	Travyanoe Lake, Chelyabinsk Region		X			1 in 1980s

Country	Site name and location	Coordinates	Breeding season	Migration period	Non breeding period	Maximum number of birds recorded and year
Russia	Uelgi Lake, Chelyabinsk Region	55°40'N, 61°30'E	X			2 in 1995
	Ulianovskoe Lake, Baganskij district, Novosibirsk Region	54°08'N, 78°11'E	X			10 in 1998
	Utich'ie Lake, Chelyabinsk Region		X			1 in 1994
	Zabaluevo Lake, Ural, Chelyabinsk Region	54°06'N, 63°00'E	X			6 in 1990-1995
Turkumenistan	Balkhan Bay, Caspian Sea	40°01'N , 52°48'E		X		127 in 1993
	Becovichbay, southeast Caspian Sea	39°32'N , 52°50'E			X	64 in 1984
	Krasnovodsky Bay, southeast Caspian Sea	39°42'-40°02'N, 52°53' -53°32'E	X	X	X	313 in 1994
	Kianly Bay, southeast Caspian Sea	40°12'N , 52°44'E			X	7 in 1999
	Lakes/rivers of mainland Turkmenistan				X	636 in 1986
	Sarakamysh Lake	41°50'-42°20'N , 56°52'-57°50'E		X		930 in 1980
	Southeast Caspian Sea, Between Carabogasgol – Gasankuly (include Balkhan Bay, Becovichbay, Krasnovodsky Bay, Kianly Bay and Severo-Chelecensky Bay)	37°23'-41°08'N , 52°60' -53°59'E			X	820 in 1998
	Severo-Chelecensky Bay, southeast Caspian Sea	39°33'-39°42'N, 53°14'-53°30'E			X	223 in 1991 with around area
	Sutandag Lake, southern Turkmenistan		X			19 pairs in 1989
Uzbekistan	Akushpa Lake, Sudochye Wetlands	58°30'N, 43°14'E	X	X		More than3,000 in 1999
	Aydar Lake	40°53'N, 66°35'E		X	X	Several tens in 1997-2002
	Dengizkul Lake, south Uzbekistan, near border with Turkmenistan	39°07'N, 64°10'E			X	185 in 2000
	Deukhona lake	39°12'N, 64°39'E			X	6 in 2002
	Karateren Lake, Sudochye Wetlands	58°30'N, 43°14'E		X		9 in 2001
	Rogatoe Lake, near Uchkuduk Town, central Kyzylkum Desert	42°02'N, 63°37'E	X			1 in 1982
	Tuzkan Lake	40°37'N, 67°11'E				5 in 2001
	Tudakul Lake	39°52'N, 64°46'E		X		2 in 2000

Note: X indicate the records of the White-heaed Dcuk in different period.

Appendix B: Site information sheets for key sites/areas for the White-headed Duck in Central Asian region.

Notes: 1. Questionnaires disseminated to experts in the region as part of the project have solicited detailed site information on key sites/areas. The attached sheets summarise the information received.
2. Information for selected sites for which information was accessible in the literature have been prepared by the authors.

Information Sheet 1. Important sites for the White-headed Duck in China

Site Name	**Wetlands of Akto**
Area (ha)	Not available
Location	Kizilsu Kirgiz Autonomous Prefecture, western Xinjiang Autonomous Region. Near Kashi City and Artux City. 39°10'N, 76°00'E, altitude 1200m
Site Description	Arid area with high mountains with rivers, lakes and other wetlands.
Description and intensity of human use of this wetland	High intensity of agriculture and fishing; Increasing animal grazing in and around wetlands; Increasing human population; Hunting.
Protection/ownership of site	No protection.
Current threats and problems	Hunting, high intensity of agriculture, fishing and overgrazing in and around the wetlands. Increasing human population.
Suggestions for conservation of site	Survey and research activities to identify important sites for White-headed Duck. Establish Nature Reserves.
Name of Compiler	Ma Ming

Information Sheet 2. Important sites for the White-headed Duck in India

Site Name	**Amakhera Wetland**
Area (ha)	500
Location	27°31'N, 78°19'E. 40km from Aligarh, Uttar Pradesh
Site Description	Amakhera is a rain deficient, shallow, slightly saline open water wetland, which is surrounded by agricultural fields and a village on one side. There are many such wetlands within a 30km^2 radius of this area, which have large concentrations of waterbirds in winter. Amakhera is always full of thousands of waterbirds, including the Comb Duck, Ruddy Shelduck, Lesser Whistling Duck, Bar-headed Goose, Greylag Goose, Gadwall, Pintail, Spot-billed Duck, Wigeon, Garganey, Shoveller, and Common Pochard.
Description and intensity of human use of this wetland	Amakhera wetland is surrounded by agricultural fields and a village on one side. This wetland is used by villagers for bathing, washing clothes and as a source of drinking water for the livestock.
Protection/ownership of site	The wetland is protected by the villagers and hunting is strictly prohibited. It is owned by the Revenue Department.
Current threats and problems	May be drained for agriculture in the future.
Suggestions for conservation of site	The site should be surveyed and monitored regularly, especially during the winter season, when migratory birds are present.
Name of Compiler	M. Zafar-ul Islam

Information Sheet 3. Important sites for the White-headed Duck in Iran

Site Name	**Alagol Lake and Ulmagol Lake**
Area (ha)	1,180 (Alagol 900 ha and Ulmagol 280 ha)
Location	37°21'N, 54°35'E. The lakes, Alagol and Ulmagol are situated in the Province of Mazanderan, on the Turkoman steppes near the border with Turkmenistan. The lakes are situated about 60km southwest from the town of Gorgan.
Site Description	The site comprises a group of small lakes with associated marshes on the rolling grassy steppes to the east of the Caspian Sea. Alagol Lake is a slightly saline, seasonal lake. It lies about 6km southwest of Ulmagol Lake. The Ulmagol Lake is a freshwater lake. It supports reedbeds, and some aquatic vegetation. It is subject to wide fluctuations in water level, and occasionally dries out completely. The Alagol and Ulmagol lakes are good representative examples of natural saline and freshwater lakes characteristic of the vast plains to the east of the Caspian Sea. The lakes provide wintering habitat for four threatened species of birds: Dalmatian Pelican, Lesser White-fronted Goose, Imperial Eagle and White-headed Duck. Together they regularly support over 20,000 waterbirds in winter, and over 1% of the regional Middle East breeding populations of Gadwall, Tufted Duck and Common Coot. The lakes are utilised by a wide variety of waterbirds during the migration season and in winter. They are especially important for Greater Flamingo, Greylag Goose, Pochard, Smew and Common Coot. Breeding species include Great Crested Grebe, Black-winged Stilt, Kentish Plover, Slender-billed Gull and Eurasian Penduline Tit. Black Stork has been recorded in summer and may breed.
Description and intensity of human use of this wetland	Activities at the three lakes include grazing, reed cutting, recreational fishing and hunting of waterbirds. The water of Alagol Lake is being used for irrigation by local farmers, and for a fish hatchery. Research on waterbirds has been carried out by the Ornithology Unit of the Department of Environment. They have carried out annual mid-winter censuses since 1969, and breeding surveys on several other occasions. In the early 1990s two MSc students from Teheran University conducted research on the avifauna and physico-chemical characteristics of the lakes. In the surrounding area there are a few small settlements where some agriculture is practised.
Protection/ownership of site	The site has no other designation other than being declared a Ramsar Site in June 1975, and is not legally protected. The site has been listed on the Montreux Record since June 1993 due to problems at Alagol Lake.
Current threats and problems	The Ulmagol Lake is subject to high levels of disturbance from waterbird hunters. At Alagol Lake there is also some disturbance from hunting, but on a much smaller scale since Alagol Lake is less accessible. The extraction of water from Alagol Lake for irrigation purposes and for a fish hatchery has resulted in lower water levels at the lake, especially in summer.
Suggestions for conservation of site	None
Name of Compiler	David Li Zuo Wei, based on the Ramsar Information Sheet

Site Name	**Ghorigol, Zoulbin, Yanigh and Bozojigh, Eastern Azerbaijan**
Area (ha)	Ghorigol 200 ha, Zoulbin 10 ha, Yanigh 4 ha, Bozojigh 10 ha
Location	Ghorigol, 37°55'N 46°42'E, Eastern Azerbaijan, 40km west to Tabriz, near to Bostan Abad Zoulbin , 37°27'N 46°51'E, Eastern Azerbaijan, 24km to Hashtroud Yanigh, 37°25'N 46°59'E, Eastern Azerbaijan, 35km to Hashtroud

Site Name	**Ghorigol, Zoulbin, Yanigh and Bozojigh, Eastern Azerbaijan**
	Bozojigh, 37°27'N 46°46'E, Eastern Azerbaijan, 40km to Hashtrud
Site Description	Ghorigol, Altitude 1992m, permanent wetland, western and southern areas are covered by reed beds, average depth: 2m, frozen five months of the year. Zoulbin, Altitude: 1650m, permanent wetland, in drought conditions a major part of this wetland will be dry, frozen five months of the year. Yanigh, Altitude: 1650m, permanent wetland, in drought conditions a major part of this wetland will dry up Bozojigh, Altitude: 1650m, permanent wetland, in drought condition a major part of this wetland will dry up, frozen for four months of the year.
Description and intensity of human use of this wetland	Recreational, agricultural and grazing area
Protection/ownership of site	Ghorigol, Governmental, Non Hunting Area, Ramsar Site Zoulbin, No conservation status, public land
Current threats and problems	Overgrazing, over-extraction of water, drought, shooting
Suggestions for conservation of site	Upgrade status to Wildlife Refuge
Name of Compilers	Hamid Amini, Sadegh Sadeghi Zadegan and Yavar Shahbazi

Site Name	**Miankaleh Protected Area and Gorgan Bay**
Area (ha)	97,200 ha
Location	36°50'N, 53°17'E. Miankaleh Peninsula and Gorgan Bay are situated in the Province of Mazanderan, in northern Iran. They are located at the southeast extremity of the Caspian Sea
Site Description	Gorgan Bay is a shallow, brackish embayment, almost cut off from the Caspian Sea by the 60km long Miankaleh Peninsula, a low, sandy peninsula with coastal dunes, pomegranate scrub and grassland. There are extensive freshwater marshes and seasonally flooded *Tamarix* woodland at the west end of the bay, and marshes along its south shore. The wetlands of Miankaleh Peninsula and Gorgan Bay form an outstanding example of a natural sand spit/coastal lagoon system characteristic of the south Caspian. They play a substantial hydrological and ecological role in the functioning of the coastal systems of the southeast Caspian. Miankaleh wildlife refuge is one of the finest waterbird reserves in the Western Palearctic region. The wetlands provide wintering habitat for four species of globally threatened birds: Dalmatian Pelican, Pygmy Cormorant, White-headed Duck and Imperial Eagle. Gorgan Bay forms important spawning and nursery grounds for various fish species. Most of Miankaleh Peninsula is covered with a carpet of herbaceous plants, and grasses such as *Agropyron*, *Bromus, Dactylis, Cynodon and Festuca*. The western half also supports shrubby woodlands with scattered pomegranate, hawthorn, *Rhamnus* and blackberry. There are a few large willow trees planted around shepherds' houses. Much of the shoreline of the bay is fringed with a broad belt of rush and there are some large areas of glasswort flats. The marshes at the west end of the bay are dominated by sedges, with small patches of reed-beds, clumps of rush and a large stand of tamarisk. The marshes around Gorgan Bay are eutrophic due to the inflow of numerous streams, agricultural run-off and irrigation channels. The reserve is very important for its large population of raptors. Twenty-eight species have been recorded. Breeding species include Osprey, Short-toed Eagle and White-tailed Eagle. A large number of passerines remain in winter. At least

Site Name	**Miankaleh Protected Area and Gorgan Bay**
	288 species of birds have been recorded. At Miankaleh Peninsula and Gorgan Bay the Golden Jackal and Wild Boar are abundant in the reserve, and the Jungle Cat also occurs. Caspian Seals occasionally come to the Caspian shore.
Description and intensity of human use of this wetland	Gorgan Bay and the adjacent inshore waters of the Caspian Sea support an important commercial fishery. At Miankaleh Peninsula there is a fish processing factory, some farms, cultivation of cotton and wheat and small villages. Grazing by domestic livestock such as sheep, water buffaloes, goats, cows and horses.
Protection/ownership of site	The entire area of Miankaleh Peninsula and Gorgan Bay was designated as a protected region in May 1970. The wildlife refuge, to which 68,800 ha of the area was designated between 1970 and 1975, was designated as a Ramsar Site in June 1975 and a UNESCO Biosphere Reserve in June 1976.
Current threats and problems	Poaching and over-grazing by domestic livestock are relatively minor threats at Miankaleh Peninsula and Gorgan Bay. Irrigation schemes on agricultural land to the west and the south reduce the flow of freshwater into the marshes and the bay, especially in summer. The major threat to the site is the construction of an asphalt highway down to the centre of the peninsula to provide easy access to the fishery stations along the beach. The greatly increased access to the peninsula will inevitably lead to increased pressure for settlement, increased farming activities and increased poaching.
Suggestions for conservation of site	None
Name of Compiler	David Li Zuo Wei, based on the Ramsar Information Sheet

Site Name	**Parishan Lake and Dasht-i Arjan, Fars Province**
Area (ha)	Total area: 6,200 ha; Parishan Lake, 4,000 ha; Dasht-i Arjan, 2,200ha
Location	29°30'N, 52°00'E. Parishan Lake and Dasht-e-Arjan are situated in the Province of Fars, in the Zagros mountains, 40-80km west of Shiraz and 15-25km south of Kazerun.
Site Description	Elevation: 2,000 m above sea level (ASL) (Dasht-i Arjan); 853 m ASL (Parishan Lake). The wetland of Dasht-e-Arjan is an outstanding example of a freshwater wetland characteristic of the highlands of western Iran. Parishan Lake is a good example of a saline wetland characteristic of the same highlands. They support five species of threatened birds: Dalmatian Pelican, Marbled Teal, Ferruginous Duck, White-headed Duck and Imperial Eagle. Both wetlands support a very diverse flora and fauna, and thus maintain the genetic and ecological diversity of the region. In winter, the lakes hold over 20,000 waterbirds. They also support over 1% of the regional wintering populations of White Pelican, Greater Flamingo, 11 species of ducks, Common Coot, Eurasian Crane and Black-headed Gull. During breeding season, large breeding colonies of herons and ibises can be found at the lakes, as well as over 1% of the regional populations for Glossy Ibis and Eurasian Spoonbill.
Description and intensity of human use of this wetland	There are subsistence fishing, reed-cutting and extensive grazing by domestic livestock. The Ornithology Unit of the Department of the Environment has carried out annual mid-winter censuses since 1967. There are plans to build a visitor centre. This site is renowned for its spectacular scenery. In the surrounding area there are a few small settlements with orchards and gardens, some wheat cultivation and other crops.
Protection/ownership of site	A national park of 65,750 ha was established in 1972, but at the end of the 1970s after the revolution it was downgraded to the Arjan Protected Area of 52,800 ha. The site was designated as a Ramsar site on 23 June 1975. The area of the original national park was designated an UNESCO Biosphere Reserve in June

Site Name	**Parishan Lake and Dasht-i Arjan, Fars Province**
	1976.There is a game guard station on a peninsula overlooking the western part of Parishan Lake. At both lakes hunting has been prohibited since 1973. The Ramsar Management Guidance Procedure Mission that visited the lakes in 1992 made several recommendations. The most important are to demarcate the borders of the site clearly with signs, and to prohibit any further drainage activities at Parishan Lake.
Current threats and problems	Parishan Lake is under considerable threat from various sources, while Dasht-e-Arjan remains in reasonably good condition. Some 20 hectares of marsh at the extreme northwest corner of Parishan Lake were drained for agriculture about 20 years ago. Elsewhere around this lake, wet meadows have been replaced by cultivated fields. A small area of fish ponds was established on the plains to the west of the lake in the early 1980s, and it is reported that three species of carp have been introduced to the lake. There has been a considerable increase in fishing activities, and the widespread use of outboard motor boats instead of traditional reedboats has resulted in disturbance to the waterbird populations. Poaching remains a problem, as well as the accidental killing of waterbirds in fishing nets. At Dasht-e-Arjan poaching is also a problem. Two sets of high-tension power lines that cross the lake are dangerous to birds and are spoiling the beautiful scenery of the lake. One of the lines has not been in use since it was constructed in the late 1970s.
Suggestions for conservation of site	None
Name of Compiler	David Li Zuo Wei, based on the Ramsar Sheet information Sheet

Information Sheet 4. Important sites for the White-headed Duck in Kazakhstan

Site Name	**Kyzylkol Lake, Dzhambul region, south Kazakhstan**
Area (ha)	500-750 ha
Location	165km north-west of Dzhambul, south Kazakhstan. 43°44'N, 69°30'E.
Site Description	A saline, shallow lake with submerged vegetation but no emergent or marginal vegetation. It is surrounded by salt-marsh plants set back from the water edge. There is no outflow and only one freshwater inflow at the southeastern corner. The lake is situated in a semi arid desert/steppe area. Up to 200,000 waterbirds (coot, ducks and waders*)* are known to occur in autumn.
Description and intensity of human use of this wetland	Little human use, perhaps some light grazing. About a dozen shooting butts are found on shore around the lake probably used by 3 – 4 hunters several times a week, but there is no evidence of heavy shooting using boats. When shooting was observed, the birds moved out of range into the middle of the lake.
Protection/ownership of site	There is no official, legal protection for this site. Ownership details are not known.
Current threats and problems	Current threats are not known. There is intensive recreational use (shooting) in summer but not during periods when it is used by waterbirds. Over-hunting could become a problem in the future.
Suggestions for conservation of site	Site should be declared a Protected Area and hunting reduced/restricted or stopped.
Name of Compiler	Andrew Grieve

Site Name	**Tengiz-Korgalzhyn Lakes Region**
Area (ha)	1,200,000 ha
Location	The lakes are situated in the Akmola District (Akmolinskaya Oblast), northeast of the Aral Sea in central Kazakhstan, 50°10'-50°50'N, 68°40'-71°00'E. Korgalzhynskij Zapovednik, Akmolinskaya Region, 120km southwest of the capital Astana.
Site Description	Tengiz-Korgalzhyn Region consists of a complex system of fresh to saline water with many lakes separated by extensive reed beds and with a network of deep water channels with varying degrees of salinity. The whole system is fed by the Nura River which ends in the Tengiz Lake. Korgalzhyn Lake is separated by a series of dams from the huge and saline water body of the Tengiz Lake. Tengiz Lake is a saline lake of 156,000 ha. The water levels of the lakes depend on the inflow from the Nura and Kulanutpes rivers, the operation of sluices on the dams across the rivers, the amount of flooding, and the evaporation rates. The lake water has a variety mineral composition, particularly high in sulphates and chlorides. Korgalzhyn Lake is a lake of 39,600 ha with varying degrees of salinity. It comprises a network of deep water channels (0.5-2.5 m) supports rich aquatic vegetation. The average temperature in January is -17°C and in June it is 20°C. The number of days with an average temperature below zero is 150 days per year. The vegetation at and around Korgalzhyn Lake comprises reed beds with *Phragmites communis*. At the lakeside the grasses *Stipa lessingiana, Agropyron repens, Bromus inermis, Festuca sulcata* and *Calamagrostis epigeios* grow, as well as the flowering plants *Pyrethrum achilleifolium, Spiraea hypericifolia*, *Artemisia* spp., *Halocnemum strobilaceum* and *Atriplex cana*. Korgalzhyn Lake also supports large zooplankton and phytoplankton and fish populations. Korgalzhyn and Tengiz Lakes are good examples of saline lakes characteristic of the northern Kazakhstan. In the vicinity of the Nature Reserve (mainly northeast, east and southeast) is a large number of other lakes situated mainly around the little town of Korgalzhyn, possessing varied hydrologic regimes with saline or fresh water. The most important ones for White-headed Ducks are: Saumalkol Lake, Zhumaj Lake, Kumkol Lake, Kumdykol Lake and Nygis Lake and others (all with saline water). These lakes usually have considerably less vegetation than the lakes inside the reserve. Their importance is probably less as breeding sites, but more as staging areas. Peak numbers of White-headed Ducks for the area, i.e. Korgalzhyn Lake and adjacent lakes represent about 4,000 birds during September while the local breeding population is estimated at probably a few hundred pairs. The lakes are of great importance as breeding, moulting and especially resting stations for an enormous number of Anatidae and waders of many different species during their migration. The wetland is the main nesting site for 5,000-18,000 pairs of Greater Flamingo (Tengiz Lake). Dalmatian Pelicans breed with up to 500 pairs at Korgalzhyn Lake. Lesser White-fronted Geese occur with some hundreds and Red-breasted Geese with some thousands of individuals in the area and adjacent territory during migration. Other non-breeding (summer) visitors in high numbers include Common Shelduck and Ruddy Shelduck. The site is a moulting refuge for numerous non-breeding birds including European Wigeon, Northern Pintail, Gadwall, Common Pochard and Greylag Goose.
Description and intensity of human use of this wetland	In the area around Korgalzhyn Lake all activities are prohibited except research. In the area around Tengiz Lake there occurs some hunting, hay cultivation and some exploitation of natural resources. Studies have been conducted on the ecosystem and on waterbird populations.

Site Name	**Tengiz-Korgalzhyn Lakes Region**
Protection/ownership of site	The site was declared a Zapovednik (strictly protected nature reserve) in 1968. It was also a Ramsar site during Soviet Union times but Kazakhstan has not ratified the Convention since it became independent.
Current threats and problems	Favourable conditions for the White-headed Duck depend a lot on the water regime and on water management. Strong natural fluctuations in the water regime are typical for the Central Asian region. The water management is weak and function and control of dams are not effective. The impact of contaminants (mercury for instance) needs to be evaluated, particularly in the Nura River.
Suggestions for conservation of site	The site is legally protected but support in conservation management is necessary.
Name of Compiler	Goetz Eichhorn/Lars Lachmann

Information Sheet 5. Important Sites for the White-headed Duck in Mongolia

Site Name	**Khar Lake**
Area (ha)	50,000 ha
Location	Located to the east of Har Us Lake in the valley of Great Lakes, Khovd Aimag (Province). 47°58'- 48°13'N, 93°00'-93°25'E. Altitude 1106m ASL.
Site Description	A large freshwater lake with a maximum depth of 7m. It is connected to Khar Us Lake in the west, and its outflow flows into Dorgon Lake, immediately to the southeast. The lake is also connected to the Dzavkhan River. The faunal and floral characteristics are very similar to those of Khar Us Lake. The area has an extreme continental climate modified by altitude. The annual precipitation is about 300mm. A substantial area of the lake is occupied by macrophytes, mainly *Potamogeton* and *Nymphaea* sp.
Description and intensity of human use of this wetland	Livestock grazing.
Protection/ ownership of site	The area is included in Khar Us lake National Park. The sire is state owned. This site was nominated as a Ramsar site jointly with Khar Lake and Dorgon Lake in April 1999
Name of compiler	David Li Zuo Wei, based on Scott 1989

Site Name	**Khar Us Lake**
Area (ha)	150,000 ha
Location	47°45'-48°23'N, 91°57'-92°49'E, in the Valley of Great Lakes close to the Altai Mountains. 180km south of the Ulaangom City and 25km east of the Khovd City, Khovd Aimag, western Mongolia.
Site Description	This is a fresh water tectonic lake located at 1,157 m ASL, near ancient ruins 20km to the east of the Aimag/province centre. This is one of four lakes with an area of over 1,000km^2. Its area, including islands, is 1,852km^2 with 72km length, 17km width and a 306.8km shoreline perimeter. It is fed by water from a catchment of about 70,450km^2. Khovd, Buyan and Tsenkher Rivers flow into the lake and only Chono Kharaikh River flows out from the lake. Of the l20 islands in the lake, the largest one is Agbashi island with an area of over 400km^2, a length of 30km and it rises 272 metres above the lake. This island divides the lake into two parts: the Northern and Southern "oceans". The two "oceans" are connected through the straits of Lun and Yum. The Northern "ocean" is 400km^2 in area with a depth of 2 metres. It is covered with reeds. The depth of the Southern "ocean" reaches 4.5 meters. Water temperatures during the period of

Site Name	**Khar Us Lake**
	June to August is between 20^0C and 23.5^0C, whereas in the winter season it falls to 1^0C -1.5^0C at the surface and 5.1^0C -6.5^0C on the bottom. In the period between November and April it is covered with 0.8-1.2 meters of ice. Water transparency is 0.7-1.0 metres. The bed is covered with thick clays and smells of hydrogen sulphide. Along some of the shores of the lake there are sands and thick growths of water plants. Up to 80% of the lake is covered with macrophytes; the dominant forms are floating-leafed such as *Potamogeton* sp. and *Nymphaea* sp. Total mineral content is 348.03-242.08 mg/l. The pH varies between 7.7 and 7.83. Vast reed beds and extensive aquatic plant communities provide a suitable habitat for a large number of breeding and migratory waterbirds, including the globally threatened Swan Goose, Ferruginous Duck, White-headed Duck and Relict Gull. Three species of fish endemic to Western Mongolia (*Oreoleuciscus* sp.) occur in these lakes.
Description and intensity of human use of this wetland	Human use includes fishing, harvesting of muskrats and livestock grazing. The Muskrat was introduced into the lake area in 1967, and has become very abundant. Some 5,000 individuals were harvested annually in the 1970s. The lake supports a locally important fishery. Since it was protected as a National Park in 1997, muskrat harvesting and fishing are now prohibited.
Protection/ ownership of site	The area is included in the Khar Us Lake National Park. It is state owned. This site was nominated as a joint Ramsar site together with Har Lake and Dorgon Lake in April 1999.
Current threats and problems	The habitat for birds is getting worse due to livestock grazing, reed cutting, steppe fires in spring and autumn, and illegal hunting. The proposed construction of a hydroelectric power plant adjacent to the national park, overgrazing of pastureland and the introduction of the Muskrat are the main threats to the ecological integrity of the site.
Suggestions for conservation of site	None
Name of compilers	N. Tseveenmyadag and S. Gombobaatar

Site Name	**Khyargas Lake**
Area (ha)	140,700 ha
Location	Located in the valley of Great Lakes in western Mongolia, 100km southwest of Ulaangom, Khovd Aimag. 48°58'- 49°20'N, 92°48'-93°48'E, Altitude 1029m ASL.
Site Description	It is one of the biggest saline lakes in Mongolia, in the lowest depression in the Valley of Great Lakes between the Altai and Khanggai mountain ranges. The lake is 75km long and up to 31km wide, and has a maximum depth of 80m. It is connected to a nearby freshwater lake, Airag Lake. The lake has ice cover from October to May. The climatic condition is extreme continental modified by altitude. The annual precipitation is about 300mm.
Description and intensity of human use of this wetland	Some livestock grazing
Protection/ ownership of site	The area is included in Khyargas Lake National Park. State owned.
Current threats and problems	Not available
Suggestions for conservation of site	None
Name of compiler	David Li Zuo Wei, based on Scott 1989

Site Name	**Olon Lake**
Area (ha)	500 ha
Location	49°52'N, 102°38'E, in the Basin of Egiin Gol River, 2-5km south of Teshig soum Village and 140km northwest of Bulgan city, Bulgan Aimag, central Mongolia.
Site Description	This is a freshwater tectonic lake located at 980 metres ASL. This is one of 20 lakes in the area. It has an area of 0.5km^2. with a length of 0.9km and a width of 0.7km. The shoreline perimeter is 2.2km. It is connected to the Egi River. Water temperature is 18.9°C-20.1°C in June and August. The bottom of the lake is covered with slime. There are a lot of water plants growing in the lake. The lake has an abundance of fish and migratory birds. Muskrats have been introduced into the lake area.
Description and intensity of human use of this wetland	Fishing, harvesting of Muskrats and livestock grazing.
Protection/ ownership of site	No protection, state owned.
Current threats and problems	The reeds are decreasing due to the introduction of the Muskrat.
Suggestions for conservation of site	None
Name of compiler	N. Tseveenmyadag

Site Name	**Shuvuun Tsuglaan Lake on the west side of Uvs Lake**
Area (ha)	400 ha
Location	In Sagil soum, Uvs Aimag, western Mongolia. About 23km northeast of the city of Ulaangom and 10km east of Uvs Lake. 50°10'-50°13'N, 92°08'-93°12'E.
Site Description	This small lake is included in the Uvs Lake basin. It has a length of 2km, a width of 2km and an average depth of 2km. The lake is separated from the Valley of Great Lakes by the Khan-Khukhii ridge. It receives water from the west from the small rivers Nariin and Khondlon. In summer, the water temperature exhibits a gradient from 25°C at the surface to 19°C at the bottom. There is ice cover from October to May. The area has an extreme continental climate.
Description and intensity of human use of this wetland	Local people do not use the area for fishing, agriculture or water supply. The lake and its surrounding area are used for grazing cows, horses, sheep, and goats in summer. No disturbance of waterbirds has been recorded.
Protection/ ownership of site	The area is included in the buffer zone of Uvs Lake Strictly Protected Area. State owned.
Current threats and problems	Steppe fire and reed cutting
Suggestions for conservation of site	None
Name of compilers	N. Tseveenmyadag and S. Gombobaatar

Site Name	**Tes and Jiree rivers Delta, Northeast site of Uvs Lake**
Area (ha)	15,000 ha
Location	Tes soum of the Uvs Aimag in western Mongolia. The area is about 90km northeast from city Ulaangom and about 30km from the village of Tes soum. It is close to the Russian border. 50°20'- 50°31'N, 92°58'-93°17'E. Altitude 759m ASL.

Site Name	**Tes and Jiree rivers Delta, Northeast site of Uvs Lake**
Site Description	Uvs Lake is the largest in Mongolia in terms of surface area, with a length of 84km, a width of 79km and an average depth of 6km. The lake is separated from the Valley of Great Lakes by the Khan-Khukhii ridge. It has no outlet and has a very large catchment area, receiving water from the east in the Baruntura, Nariyn and Tes rivers. The latter river forms a vast area of marsh to the northeast of the lake, stradding the Russian border. The water is markedly saline (18.8 ppt.), with sulphate and sodium ions being the most important constituents. In summer, the water temperature exhibits a gradient from 25^{o}C at the surface to 19^{o}C at the bottom. There is ice cover from October to May. The area has an extreme continental climate.
Description and intensity of human use of this wetland	Local people do not use the area for fishing, agriculture and water supply. The lake and its surroundings are used for cow, horse, sheep, and goat grazing in the summer, but causes little disturbance for waterbirds.
Protection/ ownership of site	The area is included in Uvs Lake Strictly Protected Area. It is state owned. There are 4 different categories of Protected areas in Mongolia. The strongest protection measures are applied in Strictly Protected Areas.
Current threats and problems	Steppe fire and reed cutting
Suggestions for conservation of site	None
Name of compilers	N. Tseveenmyadag and S. Gombobaatar

Site Name	**Zavkhan River Delta and Airag Lake**
Area (ha)	14,330 ha
Location	In Dzavkhan soum of the Uvs Aaimag in western Mongolia. 150km southeast of Ulaangom, and about 20km northeast of the village of Dzavkhan soum. 48^{o}50'-48^{o}57'N, 93^{o}16'-93^{o}32'E.
Site Description	This is a freshwater lake which is located at 1030 m ASL not far from Khyargas Lake. It has an area of 143.3km^{2} with 16km long and 13km wide. The shoreline perimeter is 54km. Its water depth is about 10 m in Galbiin Gobi and 4-8 m in other parts. The water volume is about 820 million cu metres. The shore is steppe-like. In the north, the Galbiin hills separate it from the Khyargas Lake. Where the inflows meet the lake, the soil becomes marshy with densely growing reeds. Zavkhan and Khungui Rivers flow into the lake and it is connected to the wide valley of Galba. Water temperature in July and August is 19.5^{0}C -21.3^{0}C and 2^{0}C -2.5^{0}C at the bottom in February and March. It has ice coverage in the period between November to April and its thickness reaches 1-1.3 metres. The lakebed is composed of sand and whetstone. In addition, there is also black and brown clay which smells slightly of hydrogen sulphide. The mineral content is low (502.02 mg/l) with high concentrations of carbonate and sodium ions. The pH is 8.58. It is an exceptionally important breeding and resting site for a variety of waterbirds and it is the only remaining place in Mongolia where the Dalmatian Pelican regularly breeds. Other noteworthy waterbird species include the globally threatened Swan Goose and the Relict Gull.
Description and intensity of human use of this wetland	Some livestock grazing.
Protection/ ownership of site	The area is included in Khyargas lake National Park. The area is state owned. In April 1999, this site was nominated as a Ramsar site.
Current threats and problems	Overgrazing of the pastureland threatens the plant communities around the wetland and disturbs breeding birds.

Site Name	**Zavkhan River Delta and Airag Lake**
Suggestions for conservation of site	None
Name of compiler	N. Tseveenmyadag

Information Sheet 6. Important Sites for the White-headed Duck in Pakistan

Site Name	**Jahlar Lake**
Area (ha)	17 ha
Location	32°29'N, 72°07'E; Approx 10km southeast of Ucchali Lake and 10km southwest of Nowshera, Khushab District, Punjab Province.
Site Description	A small saline lake with little marsh vegetation in the Salt Range; similar in general character to the nearby larger Ucchali and Khabekki Lakes. The lake is fed by run-off from the surrounding hills of the Salt Range. The depth varies from 0.2m to 5m depending on the amount of rainfall received. pH values ranged from 9 to 10 in the years of 1989 to 1992. Climatic conditions: Dry subtropical climate with hot summers and cool winters. The annual rainfall varies from 300 mm to 800 mm, and the relative humidity from 22% to 85%. Principal vegetation: The aquatic vegetation includes *Carex fedia, Hydrilla verticillata, Juncus sp., Phragmites australis, Potamogeton crispus, P. pectinatus, Saccharum spontaneum, Typha angustata and Zannichellia palustris*. The natural vegetation of the region is a mixture of subtropical semi-evergreen forest and tropical thorn forest with species such as *Acacia modesta, Adhatoda vasica, Asparagus gracilis, Cocculus laeba, Cynodon dectylon, Ehretia laenis Gymnosporia royleana, Olea forruginea, Reptonia buxifolia, Sageretia lorandehuana, Tamarix aphylia, Withania coagulans, Zizyphus mauritiana and Z. nummularia*. Fauna: Information on the lake is available only after 1987. The lake is probably a regular wintering area for the White-headed Duck (see Table 10 and 11). Other waterbird present in the lake included small numbers of Little Grebe, Black-necked Grebe, up to 601 Common Pochard in January 1990 and up to 112 Common Coot in January 1988. Mammals known to occur in the area include *Canis aureus, Vulpes vulpes, Felis libyca* and *Lepus nigricollis*.
Description and intensity of human use of this wetland	The most important use of the lake is aquifer recharge. Agricultural lands around the lake belonging to Jahlar villagers, grazing lands around the lake, and the drinking water supply for the Jahlar village all depend on this ground water. Jahlar is a comparatively small village with a population of about 1,500 and a livestock population of 2,000 head of livestock. The livestock mainly graze in the scrub forests on the hills surrounding the lake. The forests also provide the firewood used by the Jahlar villagers. Some firewood is also taken by the villagers living further away from the lake. Jahlar, before it was declared a wildlife sanctuary, was considered to be a good hunting area and there reportedly used to be hunting of White-headed Ducks but after it was protected, hunting is almost non-existent. There has been no fisheries activity in the lake.
Protection/ ownership of site	The lake was declared a wildlife sanctuary in 1993, and all sorts of hunting and habitat disturbance is prohibited. The wetland was also declared (a part of Ucchali Complex wetlands) a Ramsar site on 22 March 1996. The wetland and the surrounding agricultural land are privately owned whereas the hill forests and rangelands are state owned (Government of the Punjab).
Current threats and problems	Hunting activities cause disturbance to waterbird populations. A road has been constructed around two sides of the lake which has effectively stopped the run-off water from entering into the lake. Even though drainage pipes have been put

Site Name	**Jahlar Lake**
	under the road, these do not effectively drain all the run-off water that remains dammed up behind the road. The water level and the extent of lake, however, depends mainly on the rainfall received during the monsoons which greatly varies from year to year.
Suggestions for conservation of site	Undertaking a study of the status of the wintering population of White-headed Duck on the Salt Range Lakes in northern Pakistan. This should be undertaken in relation to its status on the breeding grounds in Central Asian States to determine the causes of its population decline, and to identify remedial measures for its conservation. Instituting long term monitoring studies of climatic factors and their effect on the physical, chemical and biological characteristics of the Salt Range Lakes. Undertaking a study on the status of the White-headed Duck on the Salt Range Lakes in relation to changes in physical, chemical and biological characteristics of the lakes to suggest appropriate habitat development to ensure the survival of the species. Undertaking a satellite-tracking project to identify the migratory route and stopover sites along the flyway of the White-headed Duck. Strengthening staff capacity of protection agencies at the Salt Range Lakes to prevent illegal hunting of waterbirds which could lead to further population decline. Improving habitat conditions at the Salt Range Lakes, for example, afforestation in surrounding watersheds and restoration of water resources prevent silting of the lakes and further habitat loss. Providing training to local communities in the efficient use of local fuels to minimise the use of vegetation cover at the Salt Range Lakes. Undertaking public awareness raising programmes adjacent villages through organising local Community Based Organisations/Village Organisations (CBOs/VOs) to increase conservation awareness at the Salt Range Lakes. Encouraging development of sustainable ecotourism at the Salt Range Lakes to help improve the local economy. Ensuring management of the Salt Range Lakes, on a Participatory/Benefit sharing basis, with the active involvement of local communities.
Name of compiler	Abdul Aleem Chaudhry

Site Name	**Khabekki Lake**
Area (ha)	283 ha
Location	32°37’ N 72°14’E; 10km northeast of Nowshera and 38km northwest of Khushab, Khushab District, Punjab Province.
Site Description	A shallow, saline lake in the Salt Range, with a little aquatic vegetation but no extensive reed-beds. The lake is fed by local rainfall and several intermittent streams rising in the surrounding hills. The water level in the years 1988-1989 had risen by 30-60 cm, causing an increase in size of the lake and decrease in salinity. Because of subsequent failure of rains, water level again was reduced. The trend remained up to 1992 when due to exceptionally good monsoon rains, the water level rose again. The maximum depth is about 10.5m; a salinity of 5.2 ppt was recorded in April 1987, and a pH of 7.2 in January 1987, 9.5-10 in 1989 and 9 in the years 1991 and1992. Altitude: 978m ASL. Due to failure of rains in the previous years the extent of the lake has greatly reduced. January 2001: Water level was low due to failure of heavy rains for a long period. Only about one fourth of the lake was covered with water. Waterbird population decreased as a result. January 2002: Due to failure of heavy rains for the last four to five years the extent of the lake has been reduced. Only about 12% of the area is under water.

Site Name	**Khabekki Lake**
	Very few waterbirds were seen. There were no fisheries activities. April 2002: The extent of lake was further reduced. Only about less than 4 ha under water. There were no fisheries activities. Climatic Conditions: Dry subtropical climate with hot summers and cool winters. The annual rainfall varies from 300 mm to 800 mm, and the relative humidity from 22% to 85%. Temperatures range from an average minimum of 0.5°C in January to an average maximum of 36° C in June. Principal vegetation: The aquatic vegetation includes *Carex fedia, Chara sp., Hydrilla verticillata, Juncus sp., Najas marina, Phragmites australis, Potamogeton crispus, P. pectinatus, Saccharum spontaneum, Scirpus sp. (short), Scirpus sp.(tall), Typha angustata, Vallisneria spiralis and Zannichellia palustris.* The natural vegetation of the region is a mixture of subtropical semi-evergreen forest and tropical thorn forest with species such as *Acacia modesta, Asparagus gracilis, Cocculus laeba, Cynodon dactylon, Adhatoda vasica, Dodonaea viscose, Ehretia laenis, Gymnosporia royleana, Olea ferruginea, Rhazya stricta, Sageretia lorandetuana, Reptonia buxifolia, Tamarix aphylla, Withania coagulans, Zizyphus mauritians and Z. nummularia.* Most of the natural vegetation around the lake in the valley bottom has been cleared for agriculture, whereas the forest vegetation on the surrounding hills is severely depleted. Fauna: Formerly, and even now, a very important wintering area for the White-headed Duck (see table 10 and 11); and a regular wintering area for Greater Flamingo and many other waterbird. As many as 8,700 waterbirds were recorded in the early 1970s. About 50 bird species are normally recorded during summers. Mammals and amphibians known to occur in the area include *Canis aureus, Vulpes vulpes, Felis libyca, Lepus nigricollis and Rana tigrina.* Introduced fishes include *Labeo rohita, Catla catla, Cirrhinus mrigala, Cyprinus carpio and Ctenopharyngodon idella*.
Suggestions for conservation of site	As for Jahlar Lake
Name of compiler	Abdul Aleem Chaudhry

Site Name	**Ucchali Lake**
Area (ha)	943 ha
Location	32°33'N, 72°01'E; 13km west of Nowshera and 42km northwest of Khushab (District Head quarter) in the Punjab province of Pakistan.
Site Description	A saline lake, the largest in the Salt Range, with little marsh vegetation and almost entirely surrounded by agricultural land. The lake is fed by a small spring, seepage from adjacent irrigated land, and run-off from the surrounding hills of the Salt Range. The water level and salinity fluctuate according to local rainfall. The depth varies from 0.2m to 6m; and water is usually hyper-saline (41.5 ppt in April 1999), and had a pH of 10 in April 1999. Climatic conditions: Dry subtropical climate with hot summers and cool winters. The annual rainfall varies from 300 mm to 800 mm, and the relative humidity from 22% to 85%. Temperatures range from an average minimum of 0.5 ^{0}C in January to an average maximum of 36 ^{0}C in June. Principal vegetation: Marsh vegetation is confined to a few small patches along the lake shore, but there is a very rich growth of plankton in the lake. The dominant aquatic plants are *Carex fedia, Hydrilla verticillata, Juncus sp. Phragmites australis, Potamogeton crispus, Potamogeton pectinatus, Spergularis marina, Suaeda fruticosa, Haloxylan multiflorum, Cynodon dactylon, Phyla nodiflora, Scirpus sp. (dwarf), Scirpus sp. (tall), Paspalum distichum, Typha angustata, Imperata cylindrica, Alhagi camelorum, Rumex sp.,*

Site Name	**Ucchali Lake**
	Ranunculus scleratus. Saccharum spontaneum, Typha angustata, Vallisneria spiralis and Zannichellia palustris. The natural vegetation of the region is a mixture of subtropical semi-evergreen forest and tropical thorn forest with species such as *Acacia modesta, Adhatoda vasica, Asparagus gracilis, Cocculus laeba, Cynodon dactylon, Dodonaea viscose, Ehretia laenis, Gymnoporia royleana, Olea ferruginea, Reptonia buxifolia, Rhazya stricta, Sageretia lorandettuana, Tamarix aphylla, Withania coagulans and Zizyphus* sp. The natural vegetation around the lake has been cleared for agricultural land. Fauna: A very important wintering area for waterbird, particularly Greater Flamingo 1,360 recorded in January 1987, Anatidae and Common Coot. The number of birds present fluctuates widely from year to year and seems to be critically dependent on the water level and salinity. Between 1,100 and 3,100 Anatidae and Common Coot were reported to winter on the lake in the early 1970s, but much larger numbers have been reported in 1980s, over 100,000 waterbird, largely Common Coot, were present in the winter of 1985/1986, and 50,000 Common Coot were reported in November 1986. It's the most important wintering area for White-headed Duck in Pakistan (see Table 10 and 11). Due to failure of rains and prevention of runoff water from going into the lake in recent years, the area of the lake has greatly been reduced. As a result, the number of waterbirds visiting the lake has greatly declined. January 2001: Due to failure of rains, the water level was very low, and only a few waterbirds were present. As no fresh water is entering into the lake, a pungent smell comes out of the lake and it is difficult to stand near the water. The Flamingo population has shifted from Ucchali to Khabekki lake. January 2002: Due to failure of rains, the extent of the lake has been reduced. As the land under the lake was privately owned, the owners have started cultivating the exposed lakebed. Only a few waterbird were observed in the lake. The deteriorating situation continues. The extent of the lake has been reduced to an area of 16 to 20 ha only (April 2002).
Description and intensity of human use of this wetland	The most important use of Ucchali Lake is for aquifer recharge. Agriculture is the main land use around the lake. Most of the Ucchali village farmland is however, submerged under the lake. Very few farmers have land holdings of more than 4 ha. The average land holding is around 1 ha. The small size of the land holdings and the high productive potential encourages intensive cultivation with several crops per year. More than 80% of the farmed land is located around the lake. The main crops are cauliflower, wheat, maize, jawar, bajra, brassicas, trifolium and coriander. Cauliflower is especially important as the off-season crop that fetches very high prices in the local market. Agriculture is based on proper irrigation and adequate ground water which is amply provided due to the continuously recharged aquifer. Dependence is mainly on well irrigation. Bore-holes have been dug all around the lake, and are a constant drain on the groundwater, resulting in the lake area being further reduced. Additionally, the lake area is being reduced due to failure of rains in recent years. The watershed areas around the lake (small hills from 800 to 1500m ASL) are covered by scrub forests. People collect firewood from the community forests, and also from the Government owned reserved forests, which are relatively dense. As a rough estimate, the village requirement of firewood is around 300 tonnes. People also buy wood from illegal cutters who bring wood from the forests on camel back. An average family with 6-7 members may need around 3 camel loads of firewood per month (cooking gas is also used but only by some families). Community forests are depleting fast, whereas the Government owned forests are also being affected due to illegal cutting of wood. Areas around the lake are also used for grazing livestock. The livestock also graze in the scrub forests in the watershed and cause degradation in the forest cover.

Site Name	**Ucchali Lake**
	Ugali is the second largest village around the lake (located in the north) with about 3000 inhabitants. Agriculture, however, is not the mainstay of the village population, and only 7% of villagers depend on agriculture. 300 ha area is suitable for agriculture, out of which only 13 ha are irrigated. At present only 16% of land is being cultivated, the rest remains uncultivated, with wild growth which is utilised by livestock. Livestock number around 5000 including goats, sheep, cows, buffaloes, donkeys and camels, but the interest in rearing livestock is decreasing due to paucity of grazing lands around the village and distantly located scrub forests. The wetland has been declared a Game Reserve but special shooting permits have never been issued. Yet there is a history of illegal shooting on the lake. Limited nature-oriented recreation activities are carried out. Due to hypersalinity, fisheries introduction has not been successful, hence this activity is non-existent. Due to marshy conditions on the periphery of the lake some tall grasses grow which are harvested for thatching purposes.
Protection/ ownership of site	The wetland was declared a Game Reserve in 1985. Limited hunting is allowed in a Game Reserve on special permit basis, only two permits in one shooting season, but this facility has never been granted. The wetland was also declared (a part of Ucchali Complex) a Ramsar Site on 22 March 1996. The surrounding agricultural land is privately owned whereas the hill forests and range lands are state owned (Government of the Punjab).
Current threats and problems	Illegal hunting, recreation, livestock grazing and agricultural activities cause some disturbance to waterbird, and the marked fluctuations in water level and salinity are having a detrimental effect on the habitat. There are reports of illegal hunting of waterbirds by local people and by military personnel stationed in the area. The Soil Conservation and Agriculture Departments advocates preventing run-off water from going into the lake by constructing bunds, and directing the water to the agricultural fields. In the process, land is reclaimed from the lake, which the owners use for cropping. The sinking of tube wells for irrigation purposes also affects the lake levels by drawing down the water table.
Suggestion for conservation of site	As for Jahlar Lake
Name of compiler	Abdul Aleem Chaudhry

Information Sheet 7. Important Sites for the White-headed Duck in Russia

Site Name	**Kurlady Lake**
Area (ha)	3,600 ha
Location	Southern Ural, Chelyabinsk Region, Kopeysk Town. 55°01'N, 61°05'E.
Site Description	The depth of the lake is about 3 m, it is weakly saline and has a silty bed. About 40% of the lake is covered by emergent vegetation (*Phragmites, Cyperacea, Scirpus*). The shoreline is covered by *Phragmites communis*.
Description and intensity of human use of this wetland	Fishing, agriculture, (animal grazing), hunting and recreation. There are buildings on the shore.
Protection/ ownership of site	Access to sections of the lake used by nesting birds is limited for people and animals due to the floating vegetation.
Current threats and problems	Fishing, disturbance from people, water level fluctuation
Suggestions for conservation of site	Roosting areas for the waterbirds need to be created close to the nesting sites.
Name of compiler	Gordienko N. S.

Site Name	**Kulunda and Baraba forest steppes, Karasuksko-Burlaiskaya Lake System and Kulundinskiye Lakes**
Area (ha)	There are four wetland complexes located within this large site (region). Their areas as defined for Ramsar designation are as follows: Chany Lakes 364,848 ha, Wetlands in the Lower Bagan area 26,880 ha, Karasuksko-Burlaiskaya Lake System more than 2,000 ha, and Kulundinskiye Lakes 200,000 ha. (Chany Lakes 55°16'30"N, 77°42'30"E and in Lower Bagan area 54°09'N, 78°23'E)
Location	South of Novosibirsk Region and west of Altai Territory
Site Description	Freshwater and saline lakes and adjacent land areas.
Description and intensity of human use of this wetland	Principal activities in and around the wetlands include agriculture, grazing, hay harvesting, hunting and fishing. In general, human pressure is higher in Chany and Lower Bagan, and lower in the two other wetland complexes.
Protection/ ownership of site	Both Chany Lakes and Wetlands in the Lower Bagan Area are Ramsar sites, and both Karasuksko-Burlaiskaya Lake System and Kulundinskiye Lakes are on the Ramsar Shadow List. Many lakes, partly or fully, are included in Nature Reserves (Zakazniks). Lakes and adjacent lands are state (national) property or under collective proprietary rights by users.
Current threats and problems	Wetlands have a changeable regime of inundation and their areas can strongly decrease in some years.
Suggestions for conservation of site	It has been proposed to establish a strict nature reserve (Zapovednik) on Chany Lakes and another nature reserve (Zakaznik) in the Low Bagan area.
Name of compiler	Alexander Solokha, based on Krivenko 1999 and 2000.

Site Name	**Lakes of Tobol-Ishim Forest-steppe**
Area (ha)	1,217,000 ha (for the whole area of the wetland complex designated as a Ramsar site)
Location	55°00'–55°55'N, 67°05'–70°25'E. Ishim province of the forest-steppe zone on the Western Siberian Plain in the southern part of the Tyumen Region including territories of Armizonsky, Berdughsky, Kazansky, Sladkovsky and Ishimsky (partly) Administrative Districts, 190-250km south of the Tumen City.
Site Description	The wetland complex includes many lakes and marshes overgrown with emergent, floating and submerged aquatic plants (*Phragmites, Typha, Carex, Scirpus*, etc). The wetlands alternate with areas of birch and aspen forests as well as with meadows and steppes, most of which are ploughed.
Description and intensity of human use of this wetland	Agriculture, cattle grazing, fishing, waterbird hunting, recreation. All human activities affecting natural ecosystems are restricted (agriculture, fishing) or prohibited (hunting) in the protected areas.
Protection/ ownership of site	Ramsar site. Most important wetland habitats are included in the 6 Nature Reserves and refuges comprising a total area of about 45,000 ha where hunting is prohibited and other human activities are limited. Most areas are under state ownership.
Current threats and problems	Waterbird hunting, especially in spring, impacts negatively on waterbird populations. For the last years, waterbird habitats have declined due to decreasing inundation of the forest-steppe.
Suggestions for conservation of site	It has been proposed to extend the total area of nature reserves by 30% and to include several lakes not yet protected. A number of measures aimed at limiting economic activities have been proposed, including restriction on grazing and fishing and prohibition of hunting during the breeding period.
Name of compiler	Alexander Solokha, based on Krivenko 1999.

Site Name	**Ubsu-Nur Lake**
Area (ha)	4490 ha
Location	50°40'N, 93°00'E. Republic of Tuva (south of Central Siberia) on the Mongolian border. In Mongolian side, the lake is called Uvs Lake.
Site Description	Saline lake with shoreline covered by reed communities and surrounded by mires and swamp meadows.
Description and intensity of human use of this wetland	Human use includes cattle grazing. Intensity is unclear but it is probably low.
Protection/ ownership of site	This site belongs to the Ubsu-nur Depression Nature Reserve.
Current threats and problems	Unclear
Suggestions for conservation of site	None
Name of compiler	Alexander Solokha

Information Sheet 8. Important sites for the White-headed Duck in Turkmenistan

Site Name	**Wetlands of the southeast coast of the Caspian Sea in Western Turkmenistan and filter reservoirs in Central and southeast Turkmenistan** (combined sheet)
Area (ha)	More than 700,000 ha.
Location	Marine shallow coastal waters between cities Becdash, Crasnovodsk (now Turkmenbashies) and Gasankuly. Continental part of Turkmenistan (the area of the cities of Ashkhabad, Chardjou, Maryi and Tejen)
Site Description	The system of large marine embayments of the Caspian Sea - Rasnowodsky (now Turkmenbashies) and Severo-Chelekensky embayments are areas of Chasarskiy state natural reservation, the central and southeast Turkmenistan (Regions of the Caracum canal and Amu Darya River) artificial water storage basins, overflows, filtration lakes.
Description and intensity of human use of this wetland	Intensive economic and recreational activity, including hunting of waterbirds and fisheries.
Protection/ ownership of site	Unclear
Current threats and problems	Overfishing, hunting, water allocation to inland wetlands
Suggestions for conservation of site	To undertake an ecological study of the areas and increase awareness of the importance of the area.
Name of compilers	M. E. Gauser and V. I. Vasilyev

Information Sheet 9. Important sites for the White-headed Duck in Uzbekistan

Site Name	**Dengizkul Lake**
Area (ha)	3,130 ha
Location	39°07'N, 64°10'E Altitude: 183.1 m ASL. This large saline water body in the southwest part of the Kyzylkum Desert lies in a natural depression 70km south-south-west of the city of Bukhara and 35km south-east of Alat Town on the border of Uzbekistan and Turkmenistan

Site Name	**Dengizkul Lake**
Site Description	It is a lake with ecological conditions of natural lakes situated in the deserts of Central Asia. In the past, this lake was terminal the River Zaravshan. Records from 1914 indicate that the area of this lake was 120km^2. However, by the mid-1950s, the lake had completely dried up and turned into a big "solonchak" (big area of soil) because of the withdrawal of its waters for irrigation. Dengizkul Lake has no outflow. The main inflow is through the Dengizkul collector drain. With the increase in agriculture and water withdrawal, the drainage inflow into Dengizkul Lake grows. The construction of the Dengizkul collector drain and the Amu-Bukhara canal in 1966 resulted in an intensive filling of the lake. In the past 25 years, this lake has been converted into the biggest irrigation-wastewater lake from a periodically drying *solonchak*. The lake is 43.5km long aligned southeast to northwest. At its widest it is 9km with an average width of 7.2km. The coastline is stable. The depth in the central part is 23 m, with an average depth of about 10.69 m. The northeastern and southwestern reaches of the lake are separated from the central part by underwater elevations which impede water exchange between these areas and the central part. Most of the northeastern shore is steep, formed of soils with a high content of gypsum, sands and marl. The southern shore is low and covered with desert vegetation. Emergent vegetation is restricted to the northwestern part of the lake consisting mainly of reeds. About 4% of the lake area is covered with vegetation. The salinity of the lake at present is about 29.6mg/l. It increases as a result of evaporation. The climate is extreme continental, dry, with high fluctuations in temperature. An average temperature in January is 0 - 2^0 C, the absolute minimum - 27^0 C. The average temperature in July is +27-30^0 C, but it can be as high as 45-48^{0}C. During the winter, the lake freezes over for between 0 and 30 days. In cold winters the whole water surface of the lake may be frozen, but it usually covers only 20-30% of the surface area. This lake is of special value as a staging site for migrating waterbirds and as a wintering place for wetland birds.
Description and intensity of human use of this wetland	In 1992 Dengizkul Lake was developed for commercial fisheries. The fish yield on Dengizkul Lake reached 172 tonnes/year. At present, as a result of increasing water salinity this activity has ceased as fish have completely disappeared. The water level of the lake is decreasing each year by 0.5-1 m, and its bank zone has become shallow. Land adjoining this lake is used as desert pastures for livestock raising, mainly Astrakhan sheep. For the needs of the local population, small amounts of reed are harvested as construction material. The commercial mining of gas in the vicinity of and on Dengizkul Lake has enabled the provision of the local population with fuel and thus preserved trees and shrubs, which are important components of the desert ecosystem.
Protection/ ownership of site	Dengizkul Lake was recognised as a specially protected area or "Ornithological Zakaznik" in 1991 (category IV of IUCN). Dengizkul Lake was declared as a Ramsar site of Uzbekistan in February 2002. There are no special inspection points and staff at the lake. The lake is located at the frontier zone with Turkmenistan and it is not accessible without special permission. According to the Land Law of the Uzbekistan, the territory around Dengizkul Lake and the lake proper belongs to the state and is used by local people under control of the district and region khokimiyats - local authority, the Ministry of Agriculture and Water Management and Ministry of Oil and Gas Industry. State government bodies manage them on site.
Current threats and problems	Its hydrological regime depends on human activities. If water management authorities take the decision to stop drainage water into the lake, it is expected that there will be negative changes to the existing lake ecosystem. At present

Site Name	**Dengizkul Lake**
	there is decreasing amount of water flowing in the lake from the Dengizkul collector. As a result, the mineral content of the water has increased to 29 g/l. It is expected that this will first lead to degradation of vegetation and reduction of fish, which will in time lead to a decline in numbers of fish-eating birds.
Suggestions for conservation of site	Undertake a public awareness campaign for local people, local authority and persons responsible for water management.
Name of compiler	Evgeniya Lanovenko

Site Name	**Sudochye Wetlands**
Area (ha)	The Akushpa Lake area is about 3,070 ha
Location	58°30'N, 43°14'E Altitude: 52 m ASL. The Sudochye Wetlands occupies a shallow and vast depression located in the northwest part of the Amu Darya River Delta (western part of the southern Aral Sea region). Nearest town was Muinak but at present, there are the towns of Kungrad (60km to the south-southeast) and the Roushan village (40km to the south).
Site Description	A large part of the wetland is occupied by large and small lakes and reed beds. The four main water bodies are: Akushpa Lake, Begdulla-Aydin Lake, Big Sudochye Lake and Karateren Lake. Akushpa Lake is one the biggest among four large lakes, occupies the western part of the Sudochye Wetlands adjoining the eastern edge of the "chink" Usturt Plateau. This is a saline lake. Its maximum length is about 20km and the maximum width is about 6.5km. The depth does not exceed 1.5-1.7 m. The total coastline length is about 62km. The wetland is surrounded with reed thickets, the height and density of which decreases towards its southern extremity. The open surface of the lake is about 50% of its total area. The water is very clear and transparent to the lake bottom. Hydrological and physico-chemical conditions of the water bodies depend on the relative amounts of inflowing and outflowing water. Mean duration of ice cover reaches 100 days, mainly restricted to the period of November 15 to March 10. Salinity of the Akushpa Lake fluctuates between 16.3 to 29.6 mg/l. In the summer and autumn of 2000, when the lake water began evaporating, the salinity rapidly increased.
Description and intensity of human use of this wetland	Local people use some sections of the Sudochye Wetlands for fishing, animal grazing, hunting and catching of muskrats. In the past, people caught muskrats at the Akushpa Lake. At present both activities have been officially stopped and now a high level of poaching of muskrats occurs in autumn and early winter. During the breeding season of the birds there are no people at Akushpa Lake.
Protection/ ownership of site	The Sudochye Wetlands is recognised as a specially protected area or "zakaznik" (category IV of IUCN). There are special inspection points and staff at the lake. According to the Law of the Republic of Uzbekistan on land, the territory around Sudochye Wetlands and the lakes proper belong to the State and are used by the local people under the control of the district and region khokimiyats - local authority, the Ministry of Agriculture and Water Management. State bodies manage them on site.
Current threats and problems	The main current threat is the loss of habitats of the Sudochye Wetlands as a result of the drying up of shallow lakes due to natural periods of drought in the Central Asian region. Due to the influence of those factors Sudochye Wetlands totally dried out in 2001. Akushpa Lake was changed into a big swamp. It is possible that in future, natural climatic cycles will regularly affect the ecological conditions of the habitats (wetlands situated at the Aral Sea region) and therefore negatively affect White-headed Duck and others birds. Spring burning of reed beds is a widespread practice by local people.
Suggestions for	Sudochye Wetlands should be nominated as a Ramsar site. It is of international

Site Name	**Sudochye Wetlands**
conservation of site	importance for conservation of Anatidae and other birds like grebes, pelicans, cormorants, herons, swans, eagles, falcons, shorebirds, gulls, terns, and passerines in spring, summer and autumn seasons. Awareness amongst the local people of the detrimental effect of their activities on the wetlands needs to be increased.
Name of compilers	Evgeniya Lanovenko and Elena Kreuzberg-Mukhina

Appendix C: Key to Scientific and English name of species referred in the report.

Birds

Scientific Name	English name
Anas acuta	Northern Pintail, Pintail
Anas clypeata	Shoveller
Anas penelope	European Wigeon
Anas poecilorhyncha	Spot-billed Duck
Anas querquedula	Garganey
Anas strepera	Gadwall
Anser anser	Greylag Goose
Anser cygnoides	Swan Goose
Anser erythropus	Lesser White-fronted Goose
Anser indicus	Bar-headed Goose
Aquila heliaca	Imperial Eagle
Aythya ferina	Common Pochard
Aythya fuligula	Tufted Duck
Aythya nyroca	Ferruginous Duck
Branta ruficollis	Red-breasted Geese
Charadrius alexandrinus	Kentish Plover
Ciconia nigra	Black Stork
Circaetus gallicus	Short-toed Eagle
Dendrocygna javanica	Lesser Whistling Duck
Fulica atra	Common Coot
Grus grus	Eurasian Crane
Halieetus albicilla	White-tailed Eagle
Himantopus himantopus	Black-winged Stilt

Scientific Name	English name
Larus genei	Slender-billed Gull
Larus ridibundus	Black-headed Gull
Marmaronetta angustirostris	Marbled Teal
Mergellus albellus	Smew
Netta rufina	Red-Crested Pochard
Oxyura jamaicensis	Ruddy Duck
Oxyura leucocephala	White-headed Duck
Oxyura maccoa	Maccoa Duck
Pandion halietus	Osprey
Pelecanus crispus	Dalmatian Pelican
Pelecanus onocrotalus	White Pelican
Phalacrocorax pygmaeus	Pygmy Cormorant
Phoenicopterus ruber	Greater Flamingo
Platalea leucorodia	Eurasian Spoonbill
Plegadis falcinellus	Glossy Ibis
Podiceps cristata	Great-crested Grebe
Podiceps nigriocollis	Black-necked Grebe
Remiz pendulinus	Eurasian Penduline Tit
Sarkidiornis melanotos	Comb Duck
Tachybaptus ruficollis	Little Grebe
Tadorna ferruginea	Ruddy Shelduck
Tadorna tadorna	Common Shelduck

Plants

Scientific Name	English name
Acacia modesta	
Adhatoda vasica	Arusa
Agropyron sp.	Couch Grass
Agropyron repens	Couch Grass
Alhagi camelorum	Camel Thorn, Caspian Manna, Kameeldoringos
Artemisia spp	Sage Brush
Asparagus gracilis	Asparagus
Atriplex cana	Saltbush
Bromus inermis	Smooth Brome Grass
Bromus sp.	Brome Grass
Calamagrostis epigeios	Chee Reedgrass
Carex fedia	
Chara sp	Muskgrass, Stonewort
Cocculus laeba	
Cynodon sp.	Bermuda Grass
Cynodon dactylon	Bermuda Grass
Cyperaceae sp.	Sedge
Cyperus eleusinoides	Sedge
Dactylis sp.	Orchard Grass
Ehretia laevis	Chamaror

Scientific Name	English name
Eichhornia crassipes	Water Hyacinth
Festuca sp.	Fescue
Festuca sulcata	Fescue
Gymnosporia royleana	
Halocnemum strobilaceum	
Haloxylon multiflorum	Saksaul
Hydrilla verticillata	Florida Elodea
Imperata cylindrica	Cogon Grass
Juncus sp.	Rushes
Melilotus indicus	Yellow Sweetclover
Najas sp.	Naiad
Najas marina	Holly - leaved Naiad
Nymphaea sp.	Water Lily
Olea ferruginea	Elgon
Paspalum distichum	Water Finger Grass
Phragmites sp.	Common Reed
Phragmites australis	Common Reed
Phragmites communis	Common Reed
Phyla nodiflora	Turkey Tangle Fogfruit
Potamogeton sp.	Pondweed

Scientific Name	English name
Potamogeton crispus	Curly Pondweed
Potamogeton pectinatus	Fennel Pondweed
Pyrethrum achilleifolium	
Ranunculus scleratus	Celery-leaved Crowfoot
Reptonia buxifolia	Gurgura
Rhazya stricta	
Rumex sp	Dock
Ruppia rostellata	Ruppia
Saccharum spontaneum	Wild cane
Sageretia lorandehuana	
Scirpus sp.	Tule
Scirpus sp. (short)	Tule
Scirpus sp. (tall)	Tule
Spergularia marina	Salt-Marsh Sand Spurry
Spiraea hypericifolia	Iberian Spirea
Stipa lessingiana	
Suaeda fruticosa	Alkali Seepweed, Inkbush, Shrubby Seablite
Tamarix aphylia	Eshel Haprakim
Typha angustata	Cat-tail
Vallisneria spiralis	Straight Vallis
Withania coagulans	Paneer Bandh
Zizyphus nummularia	Jujube, Ber
Zannichellia palustris	Horned Pondweed
Zizyphus mauritiana	Ber
Zizyphus spp	Jujube

Insects

Scientific Name	English name
Corixa sp.	Water Boatmen
Micronecta sp.	Water Boatmen

Fish

Scientific Name	English name
Catla catla	Catla
Cirrhinus mrigala	Mrigal
Ctenopharyngodon idella	Grass Carp
Cyprinus carpio	Common Carp
Labeo rohita	Indian Carp
Oreochromis sp.	Tilapia

Animals

Scientific Name	English name
Canis aureus	Golden Jackal
Felis chaus	Jungle Cat
Felis libyca	Libyan Wildcat
Lepus nigricollis	Indian Hare
Phoca caspica	Caspian Seal
Sus scrofa	Wild Boar
Vulpes vulpes	Red Fox
Ondatra zibethicus	Muskrat

Amphibians

Scientific Name	English name
Rana tigrina	Indian Bullfrog

Appendix D: Contact details for contributors to the national report questionnaire.

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