

Colophon

Wetlands International is an independent global non-profit organisation dedicated solely to the work of wetland conservation and sustainable management. Networks of experts and close partnerships with key organisations provide Wetlands International with the essential tools for catalysing conservation activities worldwide. Our activities are based on sound science and have been carried out in over 120 countries.

Our vision is that all wetlands and their dependant biodiversity will be conserved, and that where wetlands are managed or used that this be done wisely.

Mission statement: "To sustain and restore wetlands, their resources, and biodiversity for future generations through research, information exchange, and conservation activities world-wide."

Ramsar Convention. The Convention on Wetlands, signed in Ramsar, Iran, in 1971, is an intergovernmental treaty which provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. There are presently 133 Contracting Parties to the Convention, with 1180 wetland Sites, totalling more than 103 million hectares, designated for inclusion in the Ramsar List of Wetlands of International Importance.

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Ramsar Sites: Directory and Overview

a guide to the Ramsar Convention's Wetlands of International Importance

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Introduction

This booklet is a guide to the Ramsar Sites Database and Directory, and highlights information about the global network of Wetlands of International Importance designated under the Ramsar Convention on Wetlands. The booklet and accompanying CD-ROM was produced for the 8th Conference of the Parties to the Ramsar Convention on Wetlands (Valencia, Spain, 18-26 November 2002).

Considerable success has been achieved through the Ramsar Convention by the present 133 Contracting Parties, who have between them, at the date of publication, designated 1180 wetland Sites, totalling over 103 million hectares. The global map (see Figure 1, next page), demonstrates that universal membership of the Convention, while not yet achieved, is a real possibility in the near future, with Africa, central Asia and Oceania and the Caribbean being the key regions for further development.

This booklet presents edited extracts from the "live" Ramsar Sites Database hosted on the Wetlands International website at www.wetlands.org. The enclosed CD captures the seventh edition of the Ramsar Sites Directory and can be browsed in a similar way to the website. All illustrations and analyses included in this booklet are taken from the web presentation.

The booklet and CD include data (taken from the Ramsar Sites Database) on the total number and regional distribution of all Sites designated up to August 2002. In accordance with established practice, all Ramsar Sites designated by 28 February 2002 for which data were available are included in the CD Directory. Sites designated after this date will be progressively added to the live web-based Directory.

This booklet does not attempt to exhaustively analyse information contained in the Ramsar Sites Database and Directory: instead its purpose is to act as a guide to the web-based Directory, which contains extensive self-help guidance and analyses of the information. Wetlands International intends this guide to be an introduction to information on wetland Sites designated under one of the most successful of the global environmental Conventions.

Map of Contracting Parties



Figure 1. The 133 Contracting Parties to the Ramsar Convention on Wetlands. Contracting Parties are coloured green. August 2002

The value of Ramsar Site designation

Global and national purpose

Contracting Parties designate at least one qualifying Wetland of International Importance (Ramsar Site) under the Convention to activate their accession. There is no upper limit to the number of Sites or the area that may be designated, but according to the Convention: *"wetlands should be selected for the List on account of their international significance in terms of ecology, botany, zoology, limnology or hydrology."* (Article 2.1)

A Site qualifies if it meets one or more of the eight Criteria established by the Convention. However, within the territory of any one Contracting Party, which Criteria are applied most strongly depends upon the eco-regional characteristics of the territory, thus the representativeness of the Sites designated will reflect a combination of national and global priorities.

At global level, the main purpose and value of Ramsar Sites is to form a global network representing all wetland types, and as called for under the Vision for the Ramsar list is: *"to develop and maintain an international network of wetlands which are important for the conservation of global biological diversity and for sustaining human life through the ecological and hydrological functions they perform."*

The recognition of wetland values and functions is a key feature of the Ramsar Convention at national level and local level, which invites ordinary people from local communities to participate in the conservation and wise use of their wetlands. The Ramsar Sites network is important in raising this awareness. Extensive and accessible guidance to enable wise use is published by the Bureau of the Convention, which elaborates the value of designation, and provides practical tools to implement wise use at national or local level.

For further information and advice, see: http://www.ramsar.org/wurc_handbook_index.htm and many other links in the Wise Use Resource Centre on the Ramsar website.

Conservation and wise use purpose

Article 3.1 of the Convention states that the Contracting Parties *"shall formulate and implement their planning so as to promote the conservation of the wetlands included in the List, and as far as possible the wise use of wetlands in their territory"*.

See http://www.ramsar.org/key_wiseuse.htm for more detail.

The linkage of conservation with the wise use of wetlands is the key to implementing the Ramsar Convention: recognising that wetlands are vital for people in providing essential goods and services, and in turn, people through wise use, enable the conservation of wetlands and their dependent species. This philosophy requires practical realisation through capacity building provided by training, raising public awareness and education. Many authorities and local communities responsible for Ramsar Sites have established public interpretation and awareness raising centres to enable the connection between conservation and wise use to be demonstrated. More information can be found on the mini Outreach website at: http://www.ramsar.org/outreach_index.htm

Ramsar Sites have been described as the wetland "jewels in the crown", but the conservation and wise use principles of the Convention which guide their management also apply to all the wetlands in a Contracting Party's territory. Sites form part of a network at national and sometimes regional level within the "ecosystem approach" of the Convention on Biological Diversity (CBD), which recognises wetlands as integral to river basins, and as critical to securing water and food security for people. In addition, many Sites are identified as crucial 'links in the chain' for migratory species, notably on migratory waterbird flyways, some of which are the subject of additional governmental agreements, for example the Agreement on the Conservation of African / Eurasian Migratory Waterbirds (AEWA) - see <http://www.wcmc.org.uk/AEWA>.

Important Bird Areas (and related Endemic Bird Areas) as defined by BirdLife International often coincide with Ramsar Sites, and many wetland IBAs are recognised as sites qualifying for Ramsar designation, if they do not already have that status.

See <http://www.birdlife.net/sites/whatareibas.cfm> for more information about IBAs.

Criteria used to select Sites - their purpose and goals

A wetland is identified as being of international importance if it meets at least one of the Criteria as adopted by the 4th, 6th, and 7th meetings of the Conference of the Contracting Parties to the Convention (COPs). There are currently eight Criteria, adopted by COP7 in 1999 as part of the Convention's *Strategic Framework and guidelines for the future development of the List of Wetlands of International Importance* (http://www.ramsar.org/key_guide_list_e.htm#iv)

The Criteria, summarised below, and their supporting guidelines, assist Contracting Parties to identify potential Sites that qualify as internationally important. Wetland Sites are selected for their *representativeness, rarity or uniqueness* and/or their *importance for conserving biological diversity*.

Sites containing representative, rare or unique wetland types

A wetland should be considered internationally important -

Criterion 1: if it contains a representative, rare, or unique example of a natural or near-natural wetland type found within the appropriate biogeographic region.

Sites of international importance for conserving biological diversity

A wetland should be considered internationally important -

Criterion 2: if it supports vulnerable, endangered, or critically endangered species or threatened ecological communities.

Criterion 3: if it supports populations of plant and/or animal species important for maintaining the biological diversity of a particular biogeographic region.

Criterion 4: if it supports plant and/or animal species at a critical stage in their life cycles, or provides refuge during adverse conditions.

Criterion 5: if it regularly supports 20,000 or more waterbirds.

Criterion 6: if it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird.

Criterion 7: if it supports a significant proportion of indigenous fish subspecies, species or families, life-history stages, species interactions and/or populations that are representative of wetland benefits and/or values and thereby contributes to global biological diversity.

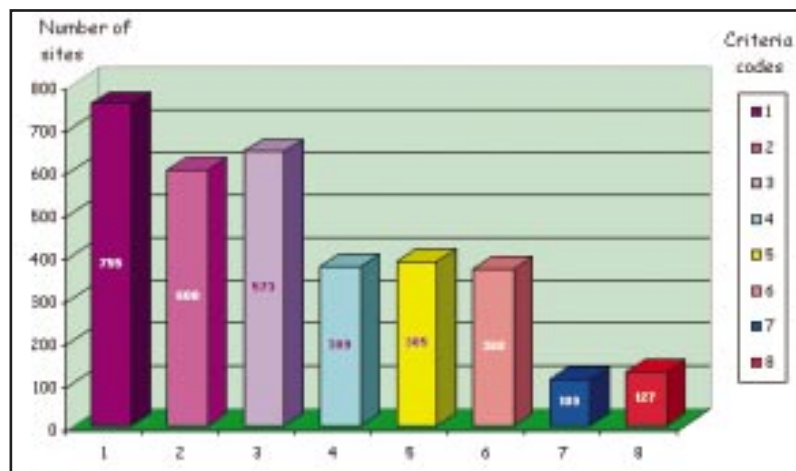
Criterion 8: if it is an important source of food for fishes, spawning ground, nursery and/or migration path on which fish stocks, either within the wetland or elsewhere, depend.

A brief review of the Criteria

Figure 2 below illustrates the relative number of Sites designated under each Criterion, but note that more than one Criterion can apply to any one Site, and some Sites have been designated under all Criteria.

Note also in Figure 2 that Criteria 7 and 8, concerning fish, were adopted more recently than the other six criteria - so the smaller number of Sites designated under these criteria is mostly a reflection of this difference.

Figure 2. Relative application of the Criteria for Site designation



Criterion 1 enables unique features or combinations of landform, hydrology and biodiversity at the wetland ecosystem scale to be recognised. This Criterion has been the most commonly applied for designation (64% of Sites), but note that its application requires some care and contextual knowledge, since Site selection should be in the context of the Site's biogeographic region, and also how representative, rare or unique it is relative to the total national and regional wetland resource. Further discussion of representativeness is in the next section.

Criteria 2 to 6 inclusive recognise a Site's importance concerning the (non-fish) biodiversity (species and populations) that depend upon the Site.

Criterion 7 and 8. These "fish" criteria were adopted at COP6 in 1996. Since that date, 103 Sites (28.5% of the total designated since COP6), have been designated under either or both criteria 7 or 8, an indication of the major importance of wetlands in sustaining fish.

Representativeness, biogeography and ecosystem management

Of the Criteria listed in the previous section, the designation of a Site under Criterion 1 depends upon a Contracting Party clearly describing which biogeographical classification they are using. There are many different regionalisation schemes in use, and Contracting Parties are therefore now asked to specify which classification scheme they used when applying this Criterion so as to achieve: "a scientifically rigorous determination of regions as established using biological and physical parameters such as climate, soil type, vegetation cover, etc." (from the Strategic Framework for the List of Wetlands of International Importance).

The decision by a Contracting Party on the representativeness of a Site is clearly a key one, which should be considered in a regional and global context. Under-representation of certain wetland types in the List has also been recognised by Contracting Parties, who have called for stronger emphasis on wetlands such as coral reefs, mangroves, sea-grass beds, wet grasslands and peatlands, with further guidance on identifying and designating such wetlands being prepared by the Convention's Scientific and Technical Review Panel (STRP).

Using the Criteria to designate Ramsar Sites is however just the start. Contracting Parties are expected to implement management planning processes on all Sites so as to secure their sustainable use through management and monitoring. They are also encouraged to manage Sites in the wider context of broad-scale land use management, particularly at the river basin/catchment scale, in recognition of the contribution well-managed wetlands make to water resource management through their role in water supply, water purification, flood control and groundwater recharge. Such management of Sites provides a powerful demonstration of the CBD's ecosystem approach to sustainable use, and since the Ramsar Criteria cover habitat, species and genetic populations, Sites cover many of the CBD's indicative elements of biological diversity.

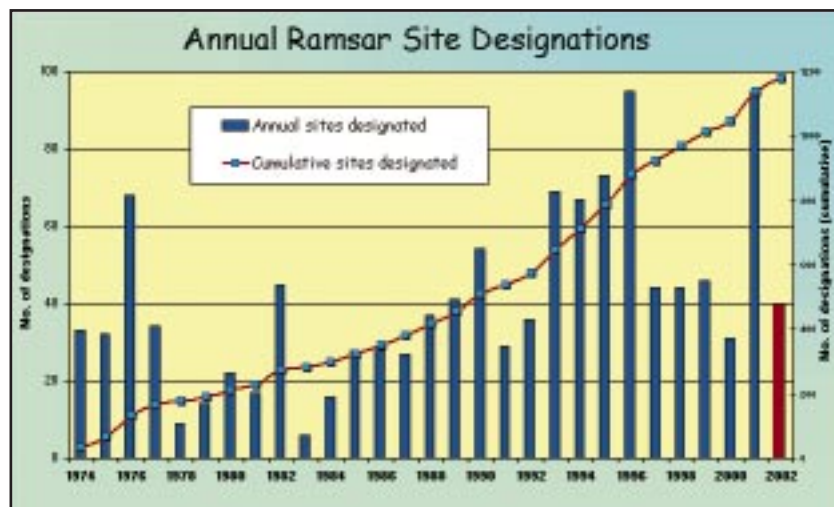
The Ramsar List and its characteristics

Collectively, all the designated Sites are listed in the Ramsar List of Wetlands of International Importance, established under Article 2.4 of the Convention, and maintained by the Ramsar Bureau.

The growth of the Ramsar List

Globally there are now 1180 Ramsar designated by the Convention's 133 Parties. Figure 3 shows the cumulative growth in the total number of Sites designated. The total for 2002 is for only the first part of the year (to August) and so are not directly comparable with totals for earlier years.

Figure 3. Comparison of annually and cumulatively designated number of Ramsar Sites - all regions. Note: 2002 values (in red) are incomplete



The total area of designated Sites, 103 million hectares (Figure 4), is significant when compared to the estimated minimum total global wetland resource of 1,279 million hectares (see GRoWI, 1999), representing a considerable success for the Convention. Note, however, that some Sites include adjacent parts of non-wetland catchments, so the total area of wetland habitat designated will be less than the total area of the Sites.

Figure 4. Comparison of annually and cumulatively designated area (hectares) of Ramsar Sites - all regions. Note: 2002 values (in red) are incomplete

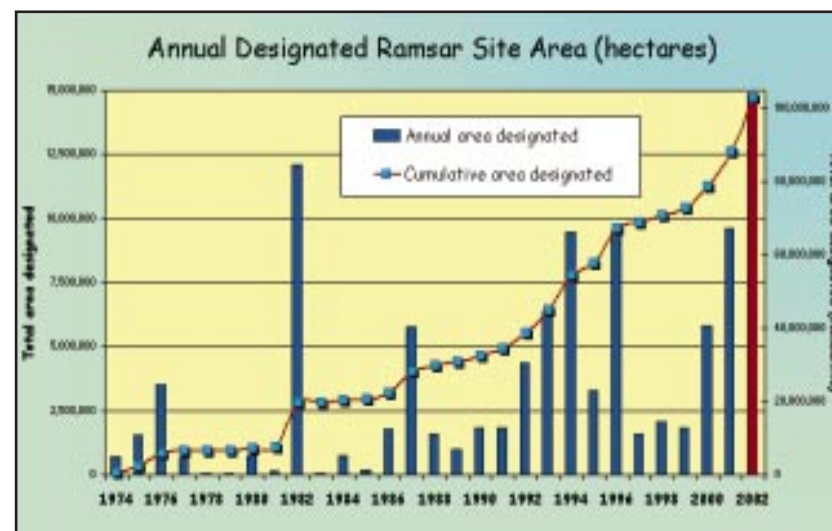


Figure 4 shows an accelerating rate of increase in designated area, a reflection of continuing recognition of the value of designating Sites, and a recent trend of designating large wetlands.

Sites designated by each Contracting Party

Table 1 lists the number and area of Sites designated by each of the 133 Contracting Parties. On accession to the Convention, each Contracting Party is required to designate at least one Site. 36 Parties, 26 of whom joined the Convention over three years ago, have only designated this first Site. Between them these Contracting Parties (27% of the total number) have designated only about 8.8% of the total area recorded in the Ramsar List, and their designation of more Sites, as expected under the Convention, would significantly enhance the List.

Table 1. List of Contracting Parties and Sites (August 2002)

Country	Entry into force	Ramsar Sites	Surface area	Country	Entry into force	Ramsar Sites	Surface area
Albania	29.03.96	1	20,000	Lebanon	16.08.99	4	71075
Algeria	04.03.84	13	1,866,340	Libyan Arab Jamahiriya	05.08.00	2	...
Argentina	04.09.92	11	2,669,589	Liechtenstein	06.12.91	1	101
Armenia	06.11.93	2	492,239	Lithuania	20.12.93	5	50,451
Australia	21.12.75	57	5,310,179	Luxembourg	15.08.98	1	313
Austria	16.04.83	11	117,952	Madagascar	25.01.99	2	53,095
Azerbaijan	21.05.01	2	99,560	Malawi	14.03.97	1	224,800
Bahamas	07.06.97	1	32,600	Malaysia	10.03.95	1	38,446
Bahrain	27.02.98	2	6,810	Mali	25.09.87	3	162,000
Bangladesh	21.09.92	2	605,500	Malta	30.01.89	2	16
Belarus	25.08.91	3	204,050	Mauritania	22.02.83	3	1,231,100
Belgium	04.07.86	6	7,935	Mauritius	30.09.01	1	26
Belize	22.08.98	1	6,637	Mexico	04.11.86	7	1,157,121
Benin	24.05.00	2	139,100	Monaco	20.12.97	1	10
Bolivia	27.10.90	7	6,518,073	Mongolia	08.04.98	6	630,580
Bosnia and Herzegovina	01.03.92	1	7,411	Morocco	20.10.80	4	14,350
Botswana	09.04.97	1	6,864,000	Namibia	23.12.95	4	629,600
Brazil	24.09.93	7	6,346,215	Nepal	17.04.88	1	17,500
Bulgaria	24.01.76	5	2,803	Netherlands	23.09.80	24	326,928
Burkina Faso	27.10.90	3	299,200	New Zealand	13.12.76	5	38,868
Burundi	05.10.02	1	1,000	Nicaragua	30.11.97	8	405,691
Cambodia	23.10.99	3	54,600	Niger	30.08.87	4	715,302
Canada	15.05.81	36	13,051,501	Nigeria	02.02.01	1	58,100
Chad	13.10.90	2	1,843,168	Norway	21.12.75	23	70,150
Chile	27.11.81	7	100,174	Pakistan	23.11.76	16	283,952
China	31.07.92	21	2,547,763	Panama	26.11.90	3	110,984
Colombia	18.10.98	2	439,000	Papua New Guinea	16.07.93	2	594,924
Comoros	09.06.95	1	30	Paraguay	07.10.95	4	775,000
Congo	18.10.98	1	438,960	Peru	30.03.92	8	6,759,388
Costa Rica	27.04.92	10	312,811	Philippines	08.11.94	4	68,404
Côte d'Ivoire	27.06.96	1	19,400	Poland	22.03.78	8	90,455
Croatia	25.06.91	4	80,455	Portugal	24.03.81	12	66,096
Cuba	12.08.01	1	452,000	Republic of Korea	28.07.97	2	960
Cyprus	11.11.01	1	1,585	Republic of Moldova	20.10.00	1	19,152
Czech Republic	01.01.93	10	41,861	Romania	21.09.91	2	664,586
Democratic Republic of Congo	18.05.96	2	866,000	Russian Federation	11.02.77	35	10,323,767

Country	Entry into force	Ramsar Sites	Surface area	Country	Entry into force	Ramsar Sites	Surface area
Denmark	02.01.78	38	2,283,013	Saint Lucia	19.06.02	2	85
Dominican Republic	15.09.02	1	20,000	Senegal	11.11.77	4	99,720
Ecuador	07.01.91	8	83,285	Sierra Leone	13.12.99	1	295,000
Egypt	09.09.88	2	105,700	Slovak Republic	01.01.93	12	37,752
El Salvador	22.05.99	1	1,571	Slovenia	25.06.91	2	955
Estonia	29.07.94	10	215,950	South Africa	21.12.75	17	498,721
Finland	21.12.75	11	138,746	Spain	04.09.82	38	158,216
France	01.12.86	18	795,085	Sri Lanka	15.10.90	2	7,607
Gabon	30.04.87	3	1,080,000	Suriname	22.11.85	1	12,000
Gambia	16.01.97	1	20,000	Sweden	21.12.75	51	514,500
Georgia	07.06.97	2	34,223	Switzerland	16.05.76	8	7,946
Germany	26.06.76	31	828,931	Syrian Arab Republic	05.07.98	1	10,000
Ghana	22.06.88	6	178,410	Tajikistan	18.11.01	5	94,600
Greece	21.12.75	10	163,501	Thailand	13.09.98	6	132,041
Guatemala	26.10.90	4	502,707	The FYR of Macedonia	08.09.91	1	18,920
Guinea	18.03.93	12	4,779,061	Togo	04.11.95	2	194,400
Guinea-Bissau	14.05.90	1	39,098	Trinidad & Tobago	21.04.93	1	6,234
Honduras	23.10.93	4	172,286	Tunisia	24.03.81	1	12,600
Hungary	11.08.79	21	154,147	Turkey	13.11.94	9	159,300
Iceland	02.04.78	3	58,970	Uganda	04.07.88	1	15,000
India	01.02.82	8	194,521	Ukraine	01.12.91	22	716,250
Indonesia	08.08.92	2	242,700	United Kingdom	05.05.76	169	854,806
Iran, Islamic Republic of	21.12.75	21	1,475,720	United Republic of Tanzania	13.08.00	3	4,271,516
Ireland	15.03.85	45	66,994	United States of America	18.04.87	18	1,189,880
Israel	12.03.97	2	366	Uruguay	22.09.84	1	407,408
Italy	14.04.77	46	57,137	Uzbekistan	08.02.02	1	...
Jamaica	07.02.98	1	5,700	Venezuela	23.11.88	5	263,636
Japan	17.10.80	11	83,725	Viet Nam	20.01.89	1	12,000
Jordan	10.05.77	1	7,372	Yugoslavia	28.07.77	4	39,861
Kenya	05.10.90	4	90,969	Zambia	28.12.91	2	333,000
Latvia	25.11.95	3	43,300	former USSR *		5	1,559,500

* Five sites were Listed by the former USSR, four of which are in countries which have yet to rejoin the Convention.

Global and regional distribution of Ramsar Sites

Under the Strategic Framework and guidelines for the future development of the List of Wetlands of International Importance (Resolution VII.11) Contracting Parties are expected to designate coherent and comprehensive networks of Ramsar Sites within their territory, so as to achieve the Convention's Vision of an international network. However, as is evident from Table 1, and the global and regional distribution of designated Ramsar Sites (Figures 5 and 6), few if any Parties have yet achieved designation of such a network. The coverage and characteristics of wetlands designated for the List reflects the cumulative result of individual decisions by Parties to designate a wetland, rather than a globally co-ordinated targeted approach.

By far the largest number of Sites (over 60% of the total) are in Europe. However, Figure 7 indicates that there is a more equitable area distribution of designated Sites between the different Ramsar Regions, although designations by Asian Parties (by both number and area designated) remain particularly small. Although numerous, many European Sites are small and form only 19% of the total area designated, although the percentage of Europe's landmass that has been designated (approximately 0.8%) is comparable to other Regions such as Africa (approximately 0.9%).

Figure 5. Global distribution of Ramsar Sites. Contracting Parties are coloured green.



Figure 6. Regional distribution of Ramsar Sites (numbers of Sites)

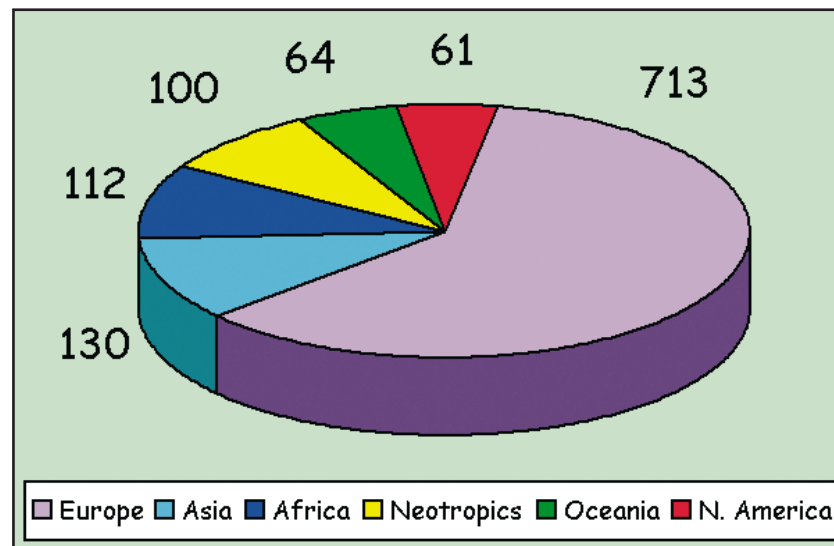
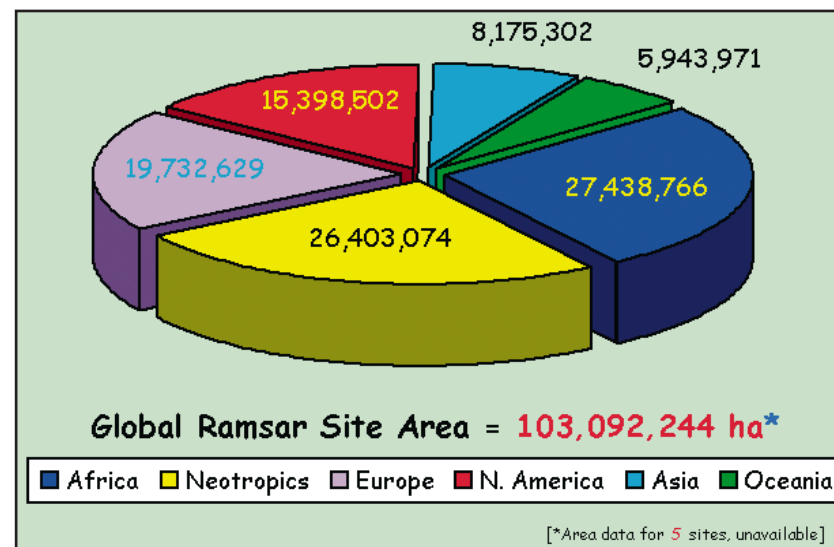


Figure 7. Regional distribution of designated Site area (hectares)



Representation and under-representation in the Ramsar List

These global and regional analyses of the distribution of wetlands designated for the Ramsar List illustrate just one of four broad categories of under-representation, which indicate that, although it is a major and significant global network for the delivery of sustainable use of biological diversity and sustaining human life, the List has not yet achieved its objective of being a coherent and comprehensive national and international network.

These four categories of under-representation are:

1. Global coverage - the global distribution of designated wetlands in relation to the global wetland resource.
2. Regional or national under-representation, according to appropriate biogeographic classifications, and notably in those Parties who have designated only one or very few Sites.
3. Numbers of Sites designated for certain of the wetland types of the Ramsar Classification of Wetland Type.
4. Numbers of Sites designated for their wetland-dependant biodiversity (under Criteria 2-8), for example gaps in the site networks for migratory waterbirds and globally threatened species.

No numerical targets have been defined to objectively correct these forms of under-representation, and full assessment of under-representation is hampered by lack of knowledge of the size and characteristics of the global wetland resource (as recognised in COP7 Resolution VII.20 on national wetland inventory) and most wetland types. However, for example, a recent analysis for Europe by BirdLife International indicated that only one-quarter of Important Bird Areas which potentially qualify as Ramsar Sites (under Criteria 2, 4, 5 and/or 6) have been partly or wholly designated.

Contracting Parties have recognised that a number of wetland types are under-represented in the List (Action 6.2.3 of the Convention's Strategic Plan 1997-2002), indicating that there should be priority for designating such wetlands, particularly coral reefs, mangroves, sea-grass beds and peatlands, and (through Resolution VII.21) intertidal wetlands especially tidal flats.

The Ramsar Sites Directory holds information about the numbers of Sites designated for each wetland type, and Table 2 lists the numbers of Sites designated for wetland types considered particularly under-represented. Certain other wetland types, including Geothermal wetlands (Zg), Alpine wetlands (Va), and Tundra wetlands (Vt), also

occur as the primary wetland type in only small numbers of Sites. Note that a small number of designated Sites is not an absolute indication of under-representation since the global distribution of each wetland type is naturally uneven and some types of wetland, for example karst and caves, are geographically restricted.

Targets for improving representation can be considered if the global or regional distribution of an under-represented type is well known. The relatively poor coverage of designated Sites for Coral reefs (Type C), particularly for Africa and Oceania (see Figure 8), could be greatly improved using sources of knowledge of coral reef distribution, see: http://www.unep-wcmc.org/marine/data/coral_mangrove/index.html.

Table 2. Wetland types regarded as under-represented

Wetland Type (Code)	Sites recording as a primary type	Other Sites recording as occurring
Subterranean Karst and cave hydrological systems (Zk)	3	9
Coral reefs (C)	10	15
Seasonal/intermittent saline/ brackish/alkaline marshes/ pools (Ss)	14	101
Marine subtidal aquatic beds (B)	16	91
Forested peatlands (Xp)	25	85
Intertidal forested wetlands (I)	38	74
Seasonal/intermittent freshwater marshes/ pools on inorganic soils (Ts)	56	256
Intertidal mud, sand or salt flats (G)	119	140
Non-forested peatlands (U)	128	155

Figure 8. Ramsar Sites designated under type C, coral reefs



Information products about Ramsar Sites

The Information Sheet on Ramsar Wetlands (RIS) (see http://www.ramsar.org/index_list.htm), with its accompanying map delimiting the Site, is compiled and submitted to the Ramsar Bureau by a Party when it designates a Site, in line with Resolution 5.3 (COP5, 1993) as reaffirmed by Resolutions VII.13 and VII.16 (COP6 1996), and VII.12 (COP7, 1999). The master copy of this official information on each Ramsar Site is held by the Ramsar Bureau, and a copy by Wetlands International. In the early days of the Convention there were no standard categories of information to be supplied by a Party on designation of a Site. Standardised categories were approved by COP4 in 1990 (Recommendation 4.7) and have been in use for all designations since.

The Ramsar Bureau maintains the official **List of Wetlands of International Importance** (Ramsar List) showing, for each country, all Sites - their names, dates of designation, province, area and geographical coordinates. The Bureau also maintains a fuller **Annotated Ramsar List**, consisting of a one paragraph description of each Site, derived from the information provided by Parties in their Information Sheets on Ramsar Wetlands (RIS). Both Lists are available from the Ramsar website (<http://www.ramsar.org>) and in hard copy from the Bureau.

Information on the world's wetland sites that are both Biosphere Reserves under UNESCO's Man and the Biosphere Programme (MAB) and also Wetlands of International Importance under the Ramsar Convention, is maintained on a joint website at: <http://www.unesco.org/mab/ramsarmab.htm>

Wetlands International develops and maintains the **Ramsar Sites Database** under contract to the Ramsar Bureau and prepares the Ramsar Sites Directory, which is a fuller description of each Site, again taken from the RIS.

Ramsar Sites Database

The Ramsar Sites Database is the suite of information resources and tools which provide an information "system" about Ramsar Sites. Recommendation 4.7 of the Conference of Contracting Parties

established that the "data sheet developed for the description of Ramsar Sites . . . be used by Contracting Parties and the Bureau in presenting information for the Ramsar database". Data from the official RISs supplied by Parties is coded and entered into the database, to be used for analyses of the status and characteristics of the Ramsar Site network.

Data from the Ramsar Sites Database is also provided to the Columbia University's Center for International Earth Science Information Network (CIESIN) under a three way Memorandum of Understanding between the Ramsar Bureau, Wetlands International and CIESIN. Acting as a "gateway" to the Ramsar Database, the purpose is to allow data and map comparisons of Ramsar Sites with other spatial datasets, such as rivers, watersheds and population centres. Go to the CIESIN website at: <http://sedac.ciesin.org/ramsardg/> to enter the interactive viewer.

Ramsar Sites Directory

The Directory is a unique Internet-based technical product containing concisely written descriptions of each Ramsar Site in a standard format, taken from the RIS.

Since the style and level of detail of information provided by Parties when they have designated a Site varies considerably, particularly between Sites designated in the early years of the Convention and more recent Sites designated using the RIS, the purpose of the Ramsar Sites Directory is to extract and present summary information about each Site in a standardised and accessible form, which in turn enables more consistent comparisons between Sites.

Directory entries include a summary of why the Site is important, and full scientific names of key species recorded. Every Directory entry is now available as a web page and also in two widely used downloadable formats. A choice of access to the Directory is provided via clickable maps or via country tables. This most recent edition of the Ramsar Sites Directory marks the 7th successive issue prepared for a triennial meeting (COP) of Ramsar Contracting Parties, and includes 1,140 Sites as at 28 February 2002 for which data were available.

Using the web and CD based Ramsar Sites Directory

The Directory has been included in its entirety on the enclosed CD. The CD functions in a similar way to the on-line Internet web-based version (on <http://www.wetlands.org>). If the CD is used on a computer that is connected to the Internet, then all of the external web links that are contained in web pages should function, otherwise an error will be generated. In this case simply click on the "back" button on your Internet browser to return to the previous page. At anytime, clicking on the Wetlands International logo will navigate back to the start or home page of the CD.

The CD will start automatically when inserted into a computer, and will open the home page as shown below. Click anywhere on the page and you will reach the Directory menu.

Figure 9. Launching the Ramsar Sites Directory from the CD



Introduction to using the Sites Directory

The Directory is structured into global, regional and country sub-directories, and is navigated using clickable key maps to reach the country and Site level, as shown in Figure 10.

Figure 10. Navigating via maps to Site Directory entries



Country maps show the approximate locations of Ramsar Sites, and the Directory entry for the Site is accessed by clicking on the centre point, shown as a dot on the map (note: some maps lack this feature). For some countries, more detailed sub-country and even Site maps are available.

Alternatively, access to individual Directory entries can be navigated by clicking on the Country table and then in turn on the Sites table for each country, from which a choice of presentation formats can be made.

At the country level, every Site included has a concise Directory entry, which is derived from the official information supplied by Contracting Parties on the Ramsar Information Sheet. An example of the format of the standardised Directory entry is given below, organised into the following categories:

Country Name	Site Code	
Site: Name of Site	Designation date: dd/mm/yyyy	
Coordinates: Lat. Long.	Elevation: m	Area: ha
Location: Concise description.		
Criteria: any of 1 - 8 (replaces pre-1999 criteria codes)		
Importance: Description of why the Site is important, highlighting species and other features. This description may be similar to the one contained in the Annotated List, maintained by the Ramsar Bureau		
Wetland Types: Ramsar wetland classification types and a short description of morphology		
Biological/Ecological notes: Brief notes on species composition and ecology to provide an impression of the character of the Site		
Hydrological/Physical notes: Water and geo-morphological features		
Human Uses: Principal uses and any references to Wise Use		
Conservation Measures: Protection status and designations in force		
Adverse Factors: Main threats to the Site		
Site Management: Which agency (with contacts) is responsible for (local) Site management, and its address		
Note providing the source of the information.		

Definitions of key terms used, including Criteria or Wetland Types, can be accessed from the web pages. Note that the Area given is the area of the designated Site and is not necessarily the area of the wetland within the Site.

A key section of each Directory entry, following its geographical location and Criteria, is the Importance section. This provides a concise description of the value of the Site, as provided by the Administrative Authority of the Contracting Party concerned. It also sets into context the information provided in the other sections.

Directory entries may be viewed or printed out in html, MS Word, or Adobe Acrobat PDF format, depending upon the needs of the user.

Conclusions and outlook

The 1180 Ramsar Sites covering over 103 million hectares of the world's wetlands form a powerful and significant network of sites through which Contracting Parties can demonstrate and deliver sustainable use, to the benefit of the many peoples who depend on the goods and services provided by wetland ecosystems, and the conservation of global biological diversity.

In the coming years, full recognition of the role of wetland ecosystems (both designated Sites and those not yet designated) as both providers as well as users of the world's increasingly scarce water supplies, and their contribution to poverty eradication through food and water security, is an essential, but major, challenge. Designation and management of Ramsar Sites can play a powerful role in securing this understanding to the benefit of people and biodiversity, through full recognition of the vital contribution these "jewels in the wetland crown" make to maintaining the health of the world's environment. Reconciling wetland ecosystem conservation and wise use with water management and demands will be essential in the future management of existing Sites and the designation and management of additional Sites.

However, there is a long way to go to achieve this recognition through the identification and designation of all such wetlands as Ramsar Sites to form the coherent national and international networks of designated wetlands envisaged by the Vision for the List. The selection of a Site for designation is entirely a matter for each of the Contracting Parties, which are obligated to designate a single Site in order to accede to the Convention, but guided to designate a full national network of Sites by subsequent COP decisions. But as described in this booklet, 27% of Contracting Parties have so far only designated this first Site, while others have designated well over 100 Sites and/or large areas of their territory. Therefore national representativeness of designated Sites varies widely and much remains to be done to ensure that designated Sites truly represent the variety and quality of wetlands on a global, regional and national scale.

Under-representation of wetland types is a complex issue, and targets for major improvements in representation need to be based on knowledge, which remains patchy, of the global or regional extent of the available wetland resource. The results of applying the Ramsar Site

selection Criterion 1 for selection also need to be better understood. In addition, under-representation is not only a question of ensuring that all Ramsar Wetland Types (using the Ramsar classification typology) are appropriately represented: it is crucially important also to ensure that the suite of wetlands sufficiently supports dependant biodiversity, including, for example, vulnerable, endangered and critically endangered species and threatened ecological communities, and networks for migratory waterbirds and fish. This aspect is relatively poorly researched.

COP7 urged Contracting Parties to undertake comprehensive national wetland inventories as the basis for Site selection and designation, but also recognised that further Site designations should not await completion of such inventories, since many wetlands are already known to be internationally important. Further tools and guidance on wetland inventory, assessment, monitoring and management are being prepared for use by Parties to support their efforts. The results of national wetland inventory, used in conjunction with the information and analyses available from existing Sites in the Ramsar Sites Database and Sites Directory, will provide assistance to Parties in assessing the coverage and gaps in their existing national network in the context of their overall wetland resource.

This booklet and CD provides a triennial update of the Sites Directory for presentation to the 8th Ramsar Conference of the Parties, as was done for previous Conferences. However, with effect from COP8, the existing practice of triennially releasing revised and new Directory entries will be replaced by a "live" Internet presentation of updated and new entries, to reflect the continuous designation of new Sites by Contracting Parties, and the revision and updating of existing Site information. In parallel with this, the Ramsar Sites Database will be made available through the Internet, together with all of the original Ramsar Information Sheets, from which the information for the Database and Directory is drawn.

Wetlands International and the Ramsar Bureau intend this publication to act as a user-friendly guide to the various information products available, and to provide a brief assessment of the value of the information in the Ramsar Sites Database and Sites Directory and its overall content. Readers are invited to visit the websites of the Ramsar Convention and Wetlands International for further information and to access the extensive help and guidance available there.

Further reading and web links

Wetlands International's first major geographic and thematic analysis of wetlands of international importance *An Overview of the World's Ramsar Sites* (Frazier, 1996) was published in 1996. Covering the first 25 years of the Convention on Wetlands (1971-1996), the analysis was based upon information supplied by the Convention's Contracting Parties and managed by Wetlands International within the Ramsar Database. In 1999 the *Ramsar Sites Overview* (Frazier, 1999) provided an updated analysis. The 1999 Overview can be accessed from the Wetlands International website (and the enclosed CD). Further reading, together with a selection of relevant web links are provided in this section.

Web links

BirdLife International (Important Bird Areas), <http://www.birdlife.net/sites/index.cfm>
 CIESIN, (Ramsar Sites Database Gateway), <http://sedac.ciesin.org/ramsardg/>
 Convention on Biological Diversity, <http://www.biodiv.org/>
 CMS Agreement on the Conservation of African / Eurasian Migratory Waterbirds (AEWA), <http://www.wcmc.org.uk/AEWA>
 Millennium Ecosystem Assessment, www.millenniumassessment.org
 Ramsar Convention, <http://www.ramsar.org/>
 UNEP-World Conservation Monitoring Centre, <http://www.unep-wcmc.org/>
 UNESCO MAB joint website with Ramsar, <http://www.unesco.org/mab/ramsarmab.htm>
 UNESCO World Heritage Sites, <http://whc.unesco.org/>
 Wetlands International, <http://www.wetlands.org>

Ramsar Site Directories

FRAZIER, S. (editor) 1999. *A Directory of Wetlands of International Importance*. Wetlands International and Ramsar Convention Bureau. Compact Disc.
 FRAZIER, S. 1999. *Ramsar Sites Overview. A Synopsis of the World's Wetlands of International Importance*. Wetlands International. 58 pp.
 FRAZIER, S. 1996a. *An Overview of the World's Ramsar Sites*. Publication No. 39, Wetlands International. 58 pp.
 FRAZIER, S. (compiler). 1996b. *Directory of Wetlands of International Importance - An Update*. Ramsar Convention Bureau. Gland, Switzerland.
 JONES, TA. (compiler). 1993. *A Directory of Wetlands of International Importance*. 4 Vols. Ramsar Convention Bureau, Gland, Switzerland.

Regional Directories and inventories

- BIRDLIFE INTERNATIONAL. 2002. *Important Bird Areas and potential Ramsar Sites in Europe*. BirdLife International, Wageningen, The Netherlands.
- CANEVARI, P, DAVIDSON, I, BLANCO, DE, CASTRO, G, BUCHER, EH (eds). 2001. *Los Humedales de América del Sur. Una Agenda para la Conservación de la Biodiversidad y las Políticas de Desarrollo*. Wetlands International. Resumen Ejecutivo + CD Rom.
- COSTA, LT, FARINHA, JC, HECKER, N, TOMAS VIVES, P. 1999. *Mediterranean Wetland Inventory: a reference manual*. Vol. I. 5 vols. MedWet/Instituto da Conservação da Natureza/Wetlands International publication. Lisbon. 112 pp.
- CROMARTY, P. AND SCOTT, DA. 1996. A Directory of Wetlands in New Zealand. New Zealand Department of Conservation, Wellington. 395 pp.
- FINLAYSON, CM AND VAN DER VALK, AG. 1995. Wetland Classification and Inventory: A Summary. *Vegetatio* 118: 185-192.
- GRoWI, 1999. Global review of wetland resources and priorities for wetland inventory (2nd edition), edited by CM Finlayson and AG Spiers, August 1999. ERISS and Wetlands International. (also see <http://www.wetlands.org/inventory&/GRoWI/welcome.html>)
- HUGHES, RH. AND HUGHES, JS. 1992. *A Directory of African Wetlands*. IUCN, Gland and Cambridge. 820 pp.
- SCOTT, DA. (ed). 1989b. *A Directory of Asian Wetlands*. IUCN. Gland, Switzerland. 1181 pp.
- SCOTT, DA. (ed). 1993b. *A Directory of Wetlands in Oceania*. IWRB, Slimbridge, UK and AWB, Kuala Lumpur, Malaysia. 444 pp.
- SCOTT, DA. (ed). 1995. *A Directory of Wetlands in the Middle East*. IUCN, Gland, Switzerland and IWRB, Slimbridge, UK. 560 pp.
- SCOTT, DA. 1993a. Wetland inventories and the assessment of wetland loss: a global overview. pp. 154-163 In: Moser, M., Prentice, R.C. & van Vesseem, J. (eds.). *Waterfowl and Wetland Conservation in the 1990s - A Global Perspective. Proc. IWRB Symp., St. Petersburg, Florida, November 1992*. IWRB, Slimbridge, U.K. 263 pp.
- SCOTT, DA. AND CARBONELL, M. (eds). 1986. *A Directory of Neotropical Wetlands*. IUCN, Cambridge, and IWRB, Slimbridge, U.K. 684 pp.
- SCOTT, DA. AND JONES, TA. 1995. Classification and Inventory of the World's Wetlands: A Global Overview. *Vegetatio* 118: 3-16.

General, including Wise Use and valuation

- BARBIER, EB., ACREMAN, MC. AND KNOWLER, D. 1997. *Economic valuation of wetlands: A guide for policy makers and planners*. Ramsar Convention Bureau, Gland, Switzerland.
- COWARDIN, LM. AND GOLET, FC. 1995. U.S. Fish and Wildlife Service 1979 Wetland Classification: A Review. *Vegetatio* 118: 139-152.
- DAVIS, TJ. (ed). 1993. *Towards The Wise Use of Wetlands*. Wise Use Project, Ramsar Convention Bureau, Gland Switzerland. 180 pp.
- DUGAN, PJ. (ed). 1990. Wetland Conservation, A Review of Current Issues and Required Action. IUCN - The World Conservation Union. 96 pp.
- RAMSAR CONVENTION BUREAU, 2000. *Ramsar handbooks for the wise use of wetlands*. Ramsar Convention Bureau, Gland, Switzerland.

About this CD ROM

This CD ROM is designed to run on Microsoft Windows-based (Windows 95 and later) personal computers. The computer must have an Internet browser programme installed, which can be either MS Internet Explorer or Netscape. Simply insert the CD ROM into the computer, and the browser will automatically load the home page of the CD presentation. Click anywhere on the page to enter the Ramsar Sites Directory. To obtain help with the CD, click on the link: "Problem? Click here" located below the image, which opens a help page that provides further guidance.

If this CD ROM does not automatically start when inserted into the computer, open Windows Explorer, navigate to the CD drive (usually Drive D), and double click on the file "default.htm". The home page of the CD presentation will then open in your internet browser programme.

