

## Supplementary material

### **Fifty years of criteria development for selecting wetlands of international importance**

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This Supplementary material provides:

- a) a chronology of the formulations of different criteria adopted by the Ramsar Convention through its Meetings of the Conference of the Contracting Parties (COP) for the identification wetlands for designation as Wetlands of International Importance (Ramsar Sites) (Table S1); and
- b) Ramsar's Scientific & Technical Review Panel proposals to COP9 in 2005 on amending criterion 1 and its guidance so as to adapt its application to be better related to cultural or socio-economic ecosystem services (Scientific & Technical Review Panel 2005).

**Table S1. A chronological summary of the development of Ramsar’s site selection criteria**

Criteria are arranged according to their conceptual similarity, rather than their published sequence. Note that the conference in Heiligenhafen (Germany) in 1974 was not a formal Ramsar COP because at that time the Convention had not yet legally entered into force – which happened on 31 December 1975. There have been no further amendments to the criteria since 2005 (COP9). The re-formulations of the criteria listed for COP3, Regina, 1986 were not formally adopted by COP3

Heiligenhafen, 1974	COP1 Cagliari, 1980	COP3, Regina, 1986[1]	COP4, Montreux, 1989	Additions made at COP6, Brisbane, 1996	Revisions made at COP7, San José, 1999	COP9, Uganda, 2005
1. Criteria pertaining to a wetland’s importance to populations and species.	1. Quantitative criteria for identifying wetlands of importance to waterfowl.	3. Specific criteria for using waterfowl to identify wetlands of international importance.	3. Specific criteria based on waterfowl			
A wetland should be considered internationally important if:	A wetland should be considered internationally important if it:	A wetland should be considered inter-nationally important if:	A wetland should be considered inter-nationally important if:			
(ii) regularly supports either 10,000 ducks, geese and swans; or 10,000 coots; or 20,000 waders, or	a. regularly supports either 10 000 ducks, geese and swans; or 10 000 coots; or 20 000 waders;	(a) it regularly supports 20,000 waterfowl;	(a) it regularly supports 20,000 waterfowl; or		Criterion 5: A wetland should be considered internationally important if it regularly supports 20,000 or more waterbirds.	
(i) regularly supports 1% (being at least 100 individuals) of the flyway or biogeographical population of one species of waterfowl, or	b. regularly supports 1% of the individuals in a population of one species or subspecies of waterfowl;	(b) it regularly supports substantial numbers of individuals from particular groups of waterfowl, indicative of wetland values, productivity or diversity;	(b) it regularly supports substantial numbers of individuals from particular groups of waterfowl, indicative of wetland values, productivity or diversity; or		Criterion 6: A wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird.	
	c. regularly supports 1% of the breeding pairs in a population of one species or subspecies of waterfowl.	(c) where data on populations are available, it regularly supports 1% of the individuals in a population of one species or sub-species of waterfowl.	(c) where data on populations are available, it regularly supports 1% of the individuals in a population of one species or sub-species of waterfowl.			Criterion 9: A wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of wetland-dependent non-avian animal species.

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	2. General criteria for identifying wetlands of importance to plants or animals. A wetland should be considered internationally important if it:	2. General criteria for using plants or animals to identify wetlands of importance.  A wetland should be considered internationally important if:	2. General criteria based on plants or animals  A wetland should be considered internationally important if:			
(iii) supports an appreciable number of an endangered species of plant or animal, or	a. supports an appreciable number of a rare, vulnerable or endangered species or subspecies of plant or animal;	(a) it supports an appreciable assemblage of rare, vulnerable or endangered species or subspecies of plant or animal, or an appreciable number of individuals of any one or more of these species; or	(a) it supports an appreciable assemblage of rare, vulnerable or endangered species or sub-species of plant or animal, or an appreciable number of individuals of any one or more of these species; or		Criterion 2: A wetland should be considered internationally important if it supports vulnerable, endangered, or critically endangered species or threatened ecological communities.	
(iv) is of special value for maintaining genetic and ecological diversity because of the quality and peculiarities of its flora and fauna, or	b. is of special value for maintaining the genetic and ecological diversity of a region because of the quality and peculiarities of its flora and fauna;	(b) it is of special value for maintaining the genetic and ecological diversity of a region because of the quality and peculiarities of its flora and fauna; or	(b) it is of special value for maintaining the genetic and ecological diversity of a region because of the quality and peculiarities of its flora and fauna; or		Criterion 3: A wetland should be considered internationally important if it supports populations of plant or animal species important for maintaining the biological diversity of a particular biogeographic region.	
	c. is of special value as the habitat of plants or animals at a critical stage of their biological cycles;	(c) it is of special value as the habitat of plants or animals at a critical stage of their biological cycle; or	(c) it is of special value as the habitat of plants or animals at a critical stage of their biological cycle; or		Criterion 4: A wetland should be considered internationally important if it supports plant or animal species at a critical stage in their life cycles, or provides refuge during adverse conditions.	
(v) plays a major role in its region as the habitat of plants and of aquatic and other animals of scientific or economic importance.	d. is of special value for its endemic plant or animal species or communities.	(d) it is of special value for one or more endemic plant or animal species or communities.	(d) it is of special value for one or more endemic plant or animal species or communities.			
				Criterion 4: A wetland should be considered internationally important if it: a) supports a significant proportion of indigenous fish subspecies, species or families, life-history stages, species interactions or populations that are representative of wetland benefits or values and thereby contributes to global biological diversity.	Criterion 7: A wetland should be considered internationally important if it supports a significant proportion of indigenous fish subspecies, species or families, life-history stages, species interactions or populations that are representative of wetland benefits or values and thereby contributes to global biological diversity.	

Heiligenhafen, 1974	COP1 Cagliari, 1980	COP3, Regina, 1986[1]	COP4, Montreux, 1989	Additions made at COP6, Brisbane, 1996	Revisions made at COP7, San José, 1999	COP9, Uganda, 2005
2. Criteria concerned with the selection of representative or unique wetlands	3. Criteria for assessing the value of representative or unique wetlands.	3. Criteria for assessing the value of representative or unique wetlands.	1. Criteria for representative or unique wetlands	b) if it is an important source of food for fishes, spawning ground, nursery or migration path on which fish stocks, either within the wetland or elsewhere, depend.	Criterion 8: A wetland should be considered internationally important if it is an important source of food for fishes, spawning ground, nursery or migration path on which fish stocks, either within the wetland or elsewhere, depend.	Criterion 1: A wetland should be considered internationally important if it contains a representative, rare, or unique example of a natural or near-natural wetland type found within the appropriate biogeographic region.
A wetland should be considered internationally important if:	A wetland should be considered internationally important if it is a particularly good example of a specific type of wetland characteristic of its region.	A wetland should be considered internationally important if it is a particularly good example of a specific type of wetland characteristic of its region.	A wetland should be considered internationally important if:			
(i) is a representative example of a wetland community characteristic of its biogeographic region, or			(a) it is a particularly good representative example of a natural or near-natural wetland, characteristic of the appropriate biogeographical region; or (b) it is a particularly good representative example of a natural or near-natural wetland, common to more than one biogeographical region; or (c) it is a particularly good representative example of a wetland, which plays a substantial hydrological, biological or ecological role in the natural functioning of a major river basin or coastal system, especially when it is located in a transborder position; or (d) it is an example of a specific type of wetland, rare or unusual in the appropriate biogeographical region.			
(ii) exemplifies a critical stage or extreme in biological or hydromorphological processes, or (iii) is an integral part of a peculiar physical feature.						

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<p>3. Criteria concerned with the research, educational or recreational values of wetlands</p> <p>A wetland should be considered internationally important if:</p> <ul style="list-style-type: none"> <li>(i) is outstandingly important, well-situated and well-equipped for scientific research and for education, or</li> <li>(ii) is well-studied and documented over many years, with a continuing programme of research of high value, regularly published and contributed to by the scientific community, or</li> <li>(iii) offers especial opportunities for promoting public understanding and appreciation of wetlands, open to people from several countries.</li> </ul> <p>4. Criteria concerned with the practicality of conservation and management</p> <p>Notwithstanding its fitness to be considered as internationally important on one of the Criteria set out under 1, 2 and 3 above, a wetland should only be designated for inclusion in the List of the Ramsar Convention if it:</p> <ul style="list-style-type: none"> <li>(i) is physically and administratively capable of being effectively conserved and managed, or</li> <li>(ii) is free from the threat of a major impact of external pollution, hydrological interferences and land use or industrial practises.</li> </ul> <p>A wetland of national value only may nevertheless be considered of international importance if it forms a complex with another adjacent wetland of similar value across an international border.</p>						

**Scientific & Technical Review Panel proposals to COP9 on amending Criterion 1 and its guidance to adapt its application to better relate to cultural or socio-economic ecosystem services (Scientific & Technical Review Panel 2005)**

These proposed amendments were not adopted by Contracting Parties at COP9.

*Proposed amendment to Criterion 1*

A wetland should be considered internationally important if it contains a representative, rare, or unique example of a natural or ~~near~~ most-natural wetland type found within the appropriate biogeographic region.

*Proposed amendment to guidance related to Criterion 1*

A4. A 'most-natural' wetland should be considered internationally important if the maintenance of the ecological character of the site is dependent upon wise use... The ecological character of such sites relates to its provisioning, regulating, cultural or supporting ecosystem services... These wetlands are likely to be sites that have, *inter alia*, one or more of the following general characteristics:

- i. Sites where the provision of ecosystem services is of major importance in national contexts;
- ii. Sites which directly support the sustainable livelihoods of significant numbers of people;
- iii. Sites where the importance of the ecosystem services provided extends significantly beyond the borders of the site concerned (e.g. in terms of the role of the site within wider catchment or flyway contexts, the buffering of floods affecting downstream human populations, or the provision of water and food to human populations elsewhere);
- iv. Sites which have recognised value as national and international models of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland;
- [v. Sites that have recognised value as national and international models where the ecological character is dependent upon an outstanding cultural heritage (movable and building heritage) related to wetland management (such as watermills, waterwheels, acequias, fuggaras, traditional irrigation systems, and salt pan infrastructures);]
- [vi. Sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland;]
- [vii. Sites with outstanding cultural landscapes as a result of interaction between human communities and ecosystems, and where ecological character of the wetland depends on the maintenance of the features of these landscapes;]
- [viii. Sites which have outstanding examples representing major stages of earth's history, including geological or biological records or processes that can be used as examples for communication, education, and the raising of public awareness (for example, sites with a complete bio-stratigraphic Quaternary record);]

[ix. Sites where relevant intangible values are present and their existence is strongly linked with the maintenance of the ecological character of the wetland (for example, sacred sites or areas with major aesthetic values).]

### **Reference**

Scientific & Technical Review Panel (2005). Rationale for the proposed changes to the Strategic Framework and guidelines for the selection of Ramsar sites. Information Paper, Ramsar COP9 DOC. 17.