RAMSAR WETLANDS
INFORMATION SHEET

1. **Country:** New Zealand **2.Date:** November 1992 **3 Ref:** 5NZ004

4. **Name and Address of Compiler:** Helen Neale, Conservation Officer, Department of Conservation, Private Bag 3072, Hamilton, NEW ZEALAND.

5. **Name of Wetland:** KOPUATAI PEAT DOME AND ADJOINING SWAMPLAND

6. **Date of Ramsar Designation:** 4 December 1989

7. **Geographical Co-ordinates:** 175°33'E long 37°26'S lat

8. **General Location: (e.g. administrative region and nearest large town)**
Located on the Hauraki Plains in the North Island, 70km north east of Hamilton and bounded by the Piako and Waitoa Rivers and Elstow Canal.

9. **Area: (in hectares)**
9665 hectares approximately

10. **Wetland Type: (see attached classification, also approved by Montreux Rec C 4.7)**

M N O P S T U W X Y Manmade: 9 + duck ponds

11. **Altitude: (average and/or maximum and minimum)**
3-6m a.s.l.

12. **Overview: (general summary, in two or thee, sentences, of the wetland's principal characteristics)**

The site consists of a peat dome and surrounding mineralised wetland. Kopuatai Peat Dome is the largest raised (domed) bog New Zealand. It is also the only significantly unaltered restaid bog left in New Zealand. As the last example of its kind that remains intact, and because it supports a vegetation type unique in New Zealand and therefore the world, the site is of considerable conservation value. It is an important location for the greater jointed rush *(Sporadanthus traversii* - status vulnerable).

Kopuatai is listed as a wetland of international importance under the Ramsar Convention.

13. **Physical Features:(e.g. geology; geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth; water permanence; fluctuations in water level; tidal variations; catchment area; downstream area; climate)**

Peat began developing within a small graben (the Kopuatai depression) 13,500 years ago, and at present the depth of the peat has been measured at up to 12 metres deep towards the centre, thinning out to 1-2 metres near the edge. The underlying sediments comprises reworked volcaniclastic and estuarine sediments.

The hydrology of the peat dome and the interconnection of the peat dome and the

waters of the surrounding catchment is poorly understood. However, the bog is a raised peat bog, its hydrological regime is dominated by rainfall, with little interaction between the dome and the rivers bounding the bog. The physical features of the peat dome and the adjoining mineralised wetland areas are considered to be very important for flood control and protection as they provide storage for flood water from the Piako/Waitoa catchments.

There are *two* main types of wetland in the Ramsar site - peat land and mineralised wetland.

The peat land is acidic, low nutrient wetland with its only water supply being rain. Within the peat dome area there are several ponds with a water depth on average of 1-2 metres and a maximum of 3m.

In contrast the mineralised area is river influenced, occasionally flooded and consequently of far higher nutrient content. Lagoons are present in this wetland type. Mean annual rainfall is 1112mm and the mean temperature ranges from 13.4°C in January to 8.7°C in July. Frosts occur 52 days/year and fog 32 days/year.

14. Ecological Features: (main habitats and vegetation types)

BOTANY

The important vegetation types are dominated by the endemic, nationally vulnerable species, *Sporadanthus traversii* (greater jointed rush). This giant restaid "rush" covers about 2200 ha, mostly towards the east and south. Also found in this oligotrophic zone is manuka *(Leptospermum* spp), Tamingi *(Epacris* spp), mosses and liverworts *(Lycopodium* spp and *Sphagnum* spp). Cryptogamic flora is poorly studied, but *Campylopus acuminatus var. kirkii* is at least 'rare'. Extensive areas of the vulnerable clubmoss *Lycopodium serpentinum* occur at this site, which is the New Zealand stronghold for the species.

The predominant vegetation found in the mesotrophic areas are sedge *(Caladium* and *Baumea* spp) and rushes *(Schoenus* spp).

The original vegetation found along the mineralised fringes would have been raupo *(Typha* spp), sedges *(Carex* spp), cabbage trees *(Cordyline* spp) and flax *(Phormium tenax).* Most of this vegetation has now been taken over by more aggressive exotic plant species. Large areas are covered in crack willow *(Salix* spp). A great diversity of dicot herbs (mostly adventives), native monocots and ferns make up the ground cover under the willows (Irving et al, 1984).

An ecologically important kahikatea *(Dacrycarpus dacrydioides)* forest remnant occurs in the south-west corner of Kopuatai

FAUNA

The waters of Kopuatai contain a number of important fish species including the endemic black mudflsh *(Neochanna diversus).* The mudfish along with the longfinned and shortfinned eels *(Anguilla dieffenbachii* and *A. australis)* are probably the only fish to be

found in the peat dome proper. Mudfish may be threatened by the spread of mosquito fish *(Gambusia affinis),* an exotic species.

The mineralised fringe areas and the rivers contain various native species including inanga, both species of eel and mullet. Inanga *(Galaxias maculatus),* the juvenile of which form the greatest component of the whitebait catch, are abundant as these wetlands are an important spawning area for the species.

Other quite common species include the common smelt *(Retropinna retropinna)* as well as common bullies *(Gobiomorphus cotidianus).* Flounder *(Rhombosolea leporina)* are also to be expected in the rivers. Exotic fish form a large part of the fish population. These include species such as rudd *(Scardinus erythrophthalmus),* brown bullhead *(Ictalurus nebulosus,* also known as catfish), goldfish *(Carassius auratus)* and mosquito fish.

Fifty four species of birds have been recorded on Kopuatai: 27 of these are protected, 17 unprotected and 10 are game species. Found within the wetland are the Australasian bittern *(Botaurus poiciloptilus,* under threat in New Zealand), North Island fernbird *(Bowdleria punctata vealeae;* endemic, status: regionally vulnerable), banded rail *(Rallus philippensis assimilis;* endemic subspecies, status: vulnerable), marsh crake *(Porzana pusilla affinis;* endemic subspecies) and spotless crake *(Porzana tabuensis plumbea).* Many Species of Anatidae (including black swan, mallard, New Zealand shoveler, grey duck and grey teal) utilise the more fertile and biologically more productive mineralised and open water areas.

Alien mammals species are also present in the wetland. The predominant species being possum, mustelids, cats, rodents and the occasional wild pig, all of which have a detrimental effect on the native fauna. Southern fur seals have been known to stray up the Piako River, beyond Kopuatai

The most notable invertebrates inhabiting Kopuatai are the large orbweaver spider *(Eriophora heroine)* and an undescribed blood red worm (de Lange 1989). Little research has been done within the peat dome on invertebrates. It is quite likely that new species may be discovered with further research.

15. Land Tenure/Ownership of:

(a) site: All the land in the Ramsar site is Crown owned and administered by the Department of Conservation.

(b) surrounding areas: The adjoining land is primarily low-lying farm land in private ownership.

16. Conservation Measures Taken: (national category and legal status of protected areas - including any boundary changes which have been made: management practices; whether an officially approved management plan exists and whether it has been implemented)

The peat dome area is Crown land held as Stewardship Area and managed by the Department of Conservation. It was allocated to the Department of Conservation as Stewardship Area on 1 April 1987. Adjoining the peat dome area on its west boundary are mineralised wetland areas which are Crown land held as Wildlife Management Reserves and managed by the Department of Conservation. There are five Wildlife Management Reserves:

Gazette Dates:

Flax Block Wildlife Management Reserve	810.7ha	25.05.82
Patetonga Lagoon Wildlife Management Reserve	35.45ha	05.08.82
Pattersons Lagoon Wildlife Management Reserve	26.00ha	07.09.78
Partatai Block Wildlife Management Reserve	33.77ha	12.10.89
Waemaro Wildlife Management Reserve	56.56ha	24.05.82

CONSERVATION HISTORY OF THE PEAT DOME

In 1979, a Working Party drawn from all the main groups with an interest in the area prepared a submission on the status of the peat dome area and its future use and management. As a result of this submission a 20 year development moratorium was placed upon the land to allow time for detailed scientific investigations and development feasibility studies so that the dome would be managed wisely. Prior to this the land was managed by the Department of Lands and Survey.

The twenty year moratorium placed on the peat dome in 1979 was effectively nullified in 1987 when the Department of Conservation was created. The peat dome was allocated to the Department of Conservation as Stewardship Area on 1 April 1987. The Department is responsible for managing it.

Kopuatai Peat Dome and Adjoining Swampland was listed under the Ramsar Convention (a convention on wetlands of international importance especially as waterfowl habitat) on 4December 1989.

EXISTING MANAGEMENT

Existing and future management policies are and will be consistent with Kopuatai's listing under the Ramsar Convention.

Entry to the Peat Dome is prohibited unless a permit is first obtained, due to the fragile nature of the area.

The Wildlife Management Reserves are managed for the protection of wildlife and recreational hunting. These areas are open to public use, with the predominant use of this area at present being game-bird hunting, which requires the hunter to obtain a hunting permit. Game bird hunting is controlled by the Auckland/Waikato Fish and Game Council. A number of licensed private huts are situated along the eastern side of the Piako River to allow duck shooters overnight accommodation in the area. These huts are subject to Department of Conservation regulations which pertain to issues such as tidiness, removal of vegetation and disposal of rubbish. These huts will be allowed to remain, provided they meet Departmental requirements. However no further huts are to be constructed. The construction of ponds for waterfowl habitat by recreational hunters is allowed, under Departmental supervision.

Certain areas within the Wildlife Management Reserves are grazed for weed control purposes.

17. Conservation Measures Proposed But Not Yet Implemented: (c.g. management plan in preparation; officially proposed as a protected area etc)

A management plan is to be prepared for Kopuatai within the next five years.

The status of the peat dome is to be changed from Stewardship land to Government Purposes Reserve, "Wetland Management" in the future.

There is an urgent need to understand the hydrological dynamics of Kopuatai and see the special features of the bog preserved. Further study of the central bog depression, the direction of the peat flow and water retention properties of the different plant associations and the peat they form will assist with an understanding of the bog hydrology. Kopuatai is recognised as a ponding area within the Piako/Waitoa Catchment Scheme. The Waikato Regional Council have recently set up a study looking at water level movement around the peat dome.

Water quality monitoring programmes will be established to quantify the effect present and potential future development may have on the surface and ground water quality of the wetlands.

There is an urgent need to study the cryptogams in the wetland.

The control of possums which spread tuberculosis will be required. Tuberculosis control is important in terms of New Zealand's agricultural production, particularly the farming of animals.

17. Current Landuse: Principal Human Activities in:

(a) **site:** Conservation of flora and fauna, protection of wildlife, and recreational hunting are the main land uses associated with the wetland. Some grazing takes place in Wildlife Management Reserves, where there is good road access. Small areas are used to crop maize.

The peat dome is relatively unaffected by surrounding drainage.

(b) **surrounding/catchments:** Pastoral uses predominate on the surrounding areas, including sheep, beef and dairy farming. The vegetation is predominately pasture with some manuka, blackberry, gorse, rushes, willows (close to the rivers) and bracken fern.

Some peat mining is taking place on the area adjoining the dome but the remainder of the adjoining area is primarily in pasture. A blueberry farm has been established on some of the area previously mined for peat.

A total of 5019 people live on the Hauraki Plains in the general area of Kopuatai The wetland is about an hours drive from two major centres Auckland and Hamilton, and is potentially accessible to one third of the population of New Zealand.

19. Disturbances/Threats, Including Changes in Landuse and Major Development Projects: (factors which may have a negative impact on the ecological character of the wetland)

The most serious threat to the wetland, particularly the mineralised wetland areas, is continuing drainage of the surrounding area. The Piako River has been channelised and unnaturally low water levels exist. Reinstatement of natural water levels is necessary to ensure the entire wetland area is maintained. Peat mining is not seen as a serious threat to the wetland but there is an ongoing threat from fires and tuberculosis infected possums.

Drainage of the mineralised wetland areas in the Wildlife Management Reserves is likely to continue if adjoining land owners do not adopt complimentary policies and practices relating to drainage, water quality and erosion control measures.

20. Hydrological and Physical Values: (groundwater recharge, flood control, sediment trapping, shoreline stabilisation etc)

Kopuatai has a significant role in flood protection and sediment trapping in the Piako/Waitoa Catchment area. A greater understanding of the hydrological dynamics of Kopuatai is essential for future management. It is also of importance in support aquatic and terrestrial food chains -providing important spawning habitat for inanga and habitat for a range of waterfowl.

21. Social and Cultural Values: (e.g. fisheries production, forestry, religious importance, archaeological site etc)

It is known that the area, particularly the mineralised wetland zone was important to Maori and extensively used by them as a source of food (whitebait (inanga), waterfowl, cabbage tree), plant materials and for transport. The area continues to be important for whitebaiting.

The peat dome area is used primarily for conservation of flora and fauna. While the Wildlife
Management Reserves are used for protection of wildlife and some recreational shooting. Ongoing scientific research is encouraged.

22. Noteworthy Fauna: (e.g. unique, rare endangered, abundant or biogeographically important species; include count data etc)

- *Neochanna diversus* - black mudfish - endemic, status: indeterminate - has been recorded on the semi-mineralised fringes of the peat bog, but very little work has been done on the extent of the population.
- *Bowdleria punctata vealeae* - North Island fernbird - endemic, status: locally vulnerable -
- present throughout the peat bog, patchy distribution.
- *Rallus philippensis assimilis* - Banded rail - endemic subspecies, status: vulnerable - the Kopuatai Peat Dome and nearby Mangatiti Swamp are the only freshwater sites

where banded rail have been recorded.

- *Porzana tabuensis plumbea* - Spotless crake is not uncommon in suitable habitat, but is at risk due to habitat destruction.
- *Botaurus poiciloptilus* - Australasian bittern - under threat in New Zealand - scattered distribution on mineralised fringe.

Information on species numbers is not available.

23 Noteworthy Flora: (e.g. unique, rare, endangered, or biogeographically important species/communities etc) Threatened species recorded on Kopuatai:

- *Lycopodium serpentinum* - creeping clubmoss - Status: vulnerable - frequently found in the open, low vegetation peat bog areas.
- *Sporadanthus traversii* - greater jointed rush - Status: vulnerable - dominant species on approximately one third of the peat dome.
- *Cyclosorus interruptus* - fern - Status: vulnerable - occasionally recorded on mineralised river bank and semi-mineralised bog edges.
- *Utricularia australis* - floating bladderwort - Status: indeterminate - scattered throughout peat dome especially on edges of peaty pools.
- *Utricularia laterifolia* - bladderwort - Status: vulnerable - locally common in open peat bog areas with *Campylopus acuminatus var. kirkii* and *Goebelobryum unguiculatum,* both of which are rare.
- *Utricularia novae-zealandiae* - bladderwort - Status: indeterminate - scattered throughout peat dome especially on edges of peaty pools.
- *Calochilus robertsonii* - vulnerable endemic orchid - it is present in Kopuatai One plant was found in 1988 and in 1989.

A significant remnant stand of kahikatea forest *(Dacrycarpus dacrydioides)* occurs on the south west corner of Kopuatai and there is also an area of kahikatea to the north west. Less than 2% of the original kahikatea forest is left in the North Island, with even less in an ecologically viable State.

24. **Current Scientific Research and Facilities: (e.g. details of current projects; existence of field station etc)**

Major scientific research to date consists of a vegetation survey Kopuatai Peat Dome - a vegetation survey); and earth sciences research involving radiocarbon dating (History of vertical displacement of Kerepehi Fault at Kopouatal bog, Hauraki Lowlands, New Zealand, since c. 10 700 years ago; Dissolutionn and depletion of ferromagnesian minerals from Holocene tephra layers in an acid bog, NewZealand, and implications for tephra correlation). Further details are given in section 29.

Scientific research is encouraged in at Kopuatai but there are no facilities for research within the peat dome itself.

Waikato Regional Council have initiated a study into water levels around the wetland. No other major projects are underway.

25. Current Conservation Education: (e. g. visitor centres, hides, information booklet, facilities for school visits etc)

No educational programmes are underway currently.

POTENTIAL FOR EDUCATIONAL PROGRAMMES

Educational activities consistent with the management of the area are to be encouraged within Kopuatai to promote a wider understanding of its values. Development of any programmes will need to ensure that impact on the wetland is minimised.

To promote a wider understanding of the special botanical, wildlife and landscape values of the area, education, interpretation, research, tourism and recreational activities are to be investigated and encouraged if compatible with wetland management.

25. **Recreation and Tourism: (state if wetland used for recreation/tourism; indicate type and frequency/intensity)**

One of the Wildlife Management Reserves, the Flax Block, is an important area for duck and pheasant hunting. Hunting is being encouraged through the Auckland/Waikato Fish and Game Council. The Fish and Game Council also set quotas (bag limits) for the game season, sets the time of the game season, issues game hunting permits and carries out enforcement in relation to these functions Partial re-instatement of water levels in this area was completed in 1990 and casual observations by Departmental staff indicate numbers of birds are much greater than in previous years.

27. Management Authority: (name and address of body responsible for managing the wetland)

Management of Crown land and wildlife: Department of Conservation, Waikato Conservancy, Private Bag 3072, Hamilton, New Zealand.

Resource Consents: The Waikato Regional Council (Box 4010, Hamilton East) has statutory responsibilities under the Resource Management Act 1991 for water resources.

Management of the game bird hunting season and licences: The Auckland/Waikato Fish and Game Council, Brymer Road, RD 9, Frankton, New Zealand (refer to section 16 for more details).

28. Jurisdiction: (territorial e.g. state/region and functional e.g Dept of Agriculture/Dept of Environment etc)

Territorial:	Hauraki District Council; Piako-Matamata District Council; Waikato Regional Council.
Functional:	Department of Conservation, Hamilton; Auckland/Waikato Fish and Game Council.

29. Bibliographical References: (scientific/technical only)

Bell, A. 1979 : The Kopuatai Dome. Soil and Water; p26.

de Lange, P J and Lowe, D J. 1990 : History of vertical displacement of Kerepehi Fault at Kopouatai bog, Hauraki Lowlands, New Zealand, since c. 10 700 years ago. New Zealand Journal of Geology and Geophysics; 1990; Vol.33: 277-283

Harris, R W. 1978 : Report on the Future Management of the Kopuatai Peat Dome. Hauraki Catchment Board and Regional Water Board, Te Aroha.

Harrison, W and Vine, M. 1986 : Hauraki Peat Studies. Unpublished report for the Hauraki Catchment Board.

Harrison, W. 1987 : Hydrological Research Programme, Kopuatai Peat Dome. Unpublished report for the Hauraki Catchment Board.

Hodder, A P W, de Lange, P J and Lowe, D J 1991: Dissolution and depletion of ferromagnesian minerals from Holocene tephra layers in an acid bog, New Zealand, and implications for tephra correlation. Journal of Quaternary Science (1991) 6(3)195-208.

Irving, R, Skinner, M, and Thompson, K. 1984 : Kopuatai Peat Dome, A Vegetation Survey. Dept of Lands and Survey, Hamilton.

de Lange, P J. 1989 Late Quaternary development of the Kopuatai Peat Bog, Hauraki Lowlands and some palaeo-environmental inferences. Unpublished MSc Thesis University of Waikato, Hamilton.

Ogle, C C. 1983 : Unpublished data on Kopuatai Peat Dome compiled by the Fauna Survey Unit, Wildlife Service, Dept of Internal Affairs, Wellington, New Zealand.

30. Reasons for Inclusion: (state which Ramsar criteria - as adopted by Rec.C.4.15 of the Montreux Conference - are applicable)

1. (b) Kopuatai Peat Dome is the only true peat dome/restaid bog remaining intact in New Zealand and is the largest remaining freshwater wetlands left the North Island of in New Zealand. It is the best example of its kind intact in New Zealand and supports a vegetation type unique in the world, to New Zealand.

2.(a) Nine threatened species are found in the wetland including banded rail, black mudfish, three bladderwort species, greater jointed rush, creeping clubmoss, a fern and an orchid.

2.(b) It is of special value for maintaining the genetic and ecological diversity of the region.

2.(c) It is of special value as the habitat of plants or animals at a critical stage of their

biological cycles. *Sporadanthus traversii* (greater jointed rush), dominant on much of the peat dome is endemic to New Zealand, as well as having a status of vulnerable.

2.(d) It is of special value for its endemic plant or animals species, including *Sporadanthus traversii* (greater jointed rush) and black mudfish

31. Map of site: (please enclose the most detailed and up-to-date map available. preferably at least 125,000 or 1:50,000)