Australian Government

Department of Agriculture, Water and the Environment

Karst Springs and Associated Alkaline Fens of the Naracoorte Coastal Plain Bioregion

NOMINATED AS A NATIONAL THREATENED ECOLOGICAL COMMUNITY

CONSULTATION GUIDE FOR LANDOWNERS

The Karst Springs and Associated Alkaline Fens of the Naracoorte Coastal Plain Bioregion ecological community was nominated as potentially threatened in 2015 and is currently undergoing an assessment by the independent Threatened Species Scientific Committee to determine if it meets the criteria for listing under national environment law, the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The Karst Springs and Associated Alkaline Fens of the Naracoorte Coastal Plain Bioregion is a type of permanent groundwater dependent wetland on low lying areas in the near-coastal zone between the Millicent area in south eastern South Australia and Portland in south western Victoria. The ecological community consists of the plants, animals and other organisms associated with these freshwater spring fed wetlands, including the pools, soaks and streams and the fringing fens such as peatlands, sedgelands and shrubland vegetation.

Karst Springs and Alkaline Fens near Port MacDonnell SA

Consultation details

Comments are sought on the draft Conservation Advice and the Committee's assessment of the Karst Springs and Alkaline Fens as potentially endangered.

Comments close **Tuesday 26 May 2020**

About the assessment

Under the national EPBC Act an ecological community is eligible for listing as threatened if it is facing a risk of extinction in the wild, as determined in accordance with prescribed criteria. The simplest form of extinction is when an ecological community has been totally destroyed and all occurrences have been lost or removed. It is more common, however, for ecological communities to become extinct by transformation rather than complete loss – becoming different communities with different characteristic species.

The criteria used to determine the level of risk for an ecological community are set out in the EPBC Regulations. There are six criteria, each representing a different type of extinction risk. An ecological community is considered threatened if it meets the thresholds under any of the six criteria, it does not need to be threatened under all of them. The overall threat category is determined by the highest threat category met - vulnerable, endangered or critically endangered.

The decision to list an ecological community as nationally threatened is made by the Australian Government environment Minister. It follows a rigorous and transparent assessment by the Department and Threatened Species Scientific Committee. The assessment process for potentially threatened ecological communities culminates in the Committee's advice to the Minister. When an ecological community is approved for listing by the Minister, an approved Conservation Advice is published which defines the ecological community, outlines the threats and why it meets listing criteria and provides guidance on priority research and recovery actions that could be undertaken to help conserve it. An approved conservation advice for this ecological community would provide advice to help manage threats to biodiversity values in the region at a landscape scale, supplementing conservation measures for other matters of environmental significance already in the region, such as threatened species, migratory birds and Ramsar sites,.

About the Karst Springs and Alkaline Fens

The Karst Springs and Alkaline Fens is a type of wetland community of plants, animals and other organisms that occurs in the Bridgewater IBRA subregion, specifically the near coastal zone between the Millicent area in south eastern South Australia to Portland in south western Victoria. Fire disturbance is typically low and winter rainfall high in this region. This ecological community is underlain by limestone but typically contains moderately fertile soils of loam and peat, sometimes with calcareous sands. These soils are damp to waterlogged due to consistent groundwater flows from the unconfined aquifer via karstic springs and seeps. This groundwater dependant ecological community now mainly persist as scattered remnants, with one of the largest and most complex examples being Piccaninnie Ponds (already EPBC Act protected as a Ramsar site).

The Karst Springs and Alkaline Fens includes several habitats: an open water zone; a transition zone of varying depth; and a shrubby fringing zone.

When present, the permanent open freshwater spring pools such as in a drowned cave system, sinkhole or deep terminal lake, can contain a range of aquatic species. These vary with depth and can include Phytoplankton (algae) such as *Batrachospermum boryanum* and *Enteromorpha intestinalis*, free-floating macrophytes such as duckweeds, e.g. Common Duckweed (*Lemna disperna*), Floating Ivy leaf Duckweed (*Lemna trisulca*) and macrophytes anchored to the pool floor such as Water Ribbons (*Cycnogeton procerum, Triglochin striata*), Sea Tassel (*Ruppia polycarpa*), Pennywort (*Hydrocotyle verticillata*) and River Buttercup (*Ranunculus inundatus*).

In the zone where the pool depth become shallower and transition to waterlogged soils, aquatic macrophyte species such as Common Spike Rush, Water Mat and Water-Milfoil can form extensive beds. Emergent herbaceous species include Leafy Twig-rush (*Cladium procerum*), Slender Spike Sedge (*Eleocharis gracilis*), Common Reed (*Phragmites australis*), Swamp Weed (*Selliera radicans*), Three-square (*Schoenoplectus pungens*) and Bull-rush (*Typha domingensis*). Some of these plants can form dense stands that dominate the pool edges.

In the fringing zone where sedgelands grade into shrublands, the canopy is commonly dominated by Silky Tea-tree/Woolly Tea-tree/Wereo/Wiriyu (*Leptospermum lanigerum*). This shrub is typically three to six metres high

but can grow up to ten metres. Other tree species that are tolerant of waterlogging and which can also be present include Scented Paperbark (*Melaleuca squarrosa*), Swamp Paperbark (*M. ericifolia*) and Tree Everlasting (*Ozothamnus ferrugineus*). Tall species such as Swamp Gum (*Eucalyptus ovata*) can also occasionally occur.

The fringing zone also provides habitat for herbaceous species such as the Australian Native Violet, Bidgee-widgee, Angled Lobelia, Creeping Brookweed, Fireweed, Grass Daisy and Variable Willow-herb. As the fringing canopy becomes denser, the groundlayer can become sparse due to shading, with mature stands of

A range of Karst Springs and Alkaline Fens

Leptospermum lanigerum providing habitat for plant species preferring low light conditions such as the Swamp Greenhood (*Pterostylis tenuissima*). The fringing zone also provides habitat for other orchid species including the Maroon Leek-orchid, Swamp Helmet Orchid and Small Sickle Greenhood. On the less waterlogged edges of the fringing zone dominant understorey species include tall tussock sedges such as Cutting Grass (*Gahnia trifida*) and Tall Saw-sedge (*Gahnia clarkei*).

How is the Karst Springs and Alkaline Fens identified?

Karst Springs and Alkaline Fens is defined as areas of vegetation in the Bridgewater IBRA subregion that have:

- a fresh groundwater source from the Gambier Tertiary Limestone unconfined aquifer,
- an inundation regime that is permanent to semi-permanent,
- silt/loam/peat/calcareous sand overlying permeable Tertiary limestone bedrock and
- where bodies of open water such as spring pools, shallow swamps and outflow channels are present the wetland typically includes:
    - floating aquatic vegetation on open water (e.g. Azolla, Lemna); and/or
    - submergent aquatic vegetation (e.g. Milfoil and Ribbon Weed)
- where emergent vegetation or peat fens are present the wetland typically includes:
    - freshwater open aquatic herbland, *Gahnia trifida* tussock sedgeland, Typha/Phragmites tall aquatic grassland; and/or
    - shrublands such as *Leptospermum lanigerum* tall wet shrubland (SA)/Swamp Scrub (Vic), *Melaleuca squarrosa* wet heathland; and
    - the wetland is NOT dominated by coastal wattle.

It is proposed that occurrences of the Karst Springs and Alkaline Fens are only protected where they are larger than 1000m^2 (0.1 ha) and the wetland meets the key diagnostic features. These would typically be occurrences with reasonable spring flows and/or stands of remnant Tea-tree shrubland or characteristic fauna species such as the Growling Grass Frog, Australasian Bittern, Southern Water Skink, Glenelg Spiny Freshwater Crayfish, Southern Pygmy Perch. Many remnant occurrences on farms may be too small or too degraded to form part of the protected ecological community, but if listed these could be eligible for restoration work through Government programs.

Karst Springs and Alkaline Fens wetlands that do not meet the proposed definition and condition criteria to be protected by national environment law may still be protected under state regulations.

The South Australian and Victorian Governments also have laws on vegetation clearance and protecting State-listed vegetation communities that may apply to certain activities. The *Flora and Fauna Guarantee Act 1988* and *Native Vegetation Regulations 1991* (Vic), and *Native Vegetation Act 1991* (SA) requires a Native Vegetation Precinct Plan (Vic) or a Vegetation Management Plan (SA) be developed and certified

before any clearing can proceed. In many cases, similar information used for these may be used for any environment impact assessment work that may be required under national environment law.

Why is the Karst Springs and Alkaline Fens considered threatened?

The draft Conservation Advice recommends the Karst Springs and Alkaline Fens may be eligible for listing as **Endangered**.

The ecological community was part of a once extensive complex of seasonal and permanent wetlands that would seasonally amalgamate. These wetland types have now been substantially reduced in area, with less than 1000 ha of the Karst Springs and Alkaline Fens remaining. These wetlands face ongoing losses from declining groundwater levels, fragmentation, invasive species and degradation.

> *Reductions in geographic distribution are one of the key symptoms of extinction risk for ecological communities. A significant reduction in geographic distribution almost certainly comes with a significant loss of diversity in the community. As the area an ecological community occupies declines, so do carrying capacities for component species, niche diversity and opportunities for species to access resources or avoid competitors, predators and pathogens. If the areas lost have fragmented or isolated the remaining occurrences, these may not retain sufficient species or genetic diversity for the ecological community to survive over the long term. These changes will increase risks for individual species and reduce an ecological community's ability to sustain its characteristic biota, even if the distribution is not continuing to decline.*

The ecological integrity of the remaining occurrences is also severely compromised. Many remaining occurrences are fragmented or isolated remnants and under threat from altered hydrological regimes, weeds and climate change. Declining spring volumes and water quality coupled with the loss of fringing fens such as Silky Tea-tree/Woolly Tea-tree/Punung/Wiriyu shrubland is a particularly significant threat. All these stresses reduce the ecological function of the remaining occurrences.

> *Reductions in ecological function are one of the key symptoms of extinction risk for ecological communities. Ecological function refers to the ability of communities to support their full diversity of species and to sustain their functional roles, such as nutrient cycling, provision of food or shelter, predation, decomposition, pollination etc. Environmental degradation may diminish the ability of an ecological community to sustain its characteristic native biota by changing the variety and quality of environmental niche space available to individual species. These changes will increase risks for individual species and reduce an ecological community's ability to sustain its characteristic biota, even if the degradation is not continuing.*

Remnant wetland on the left; Drainage channel with fenced pasture and watering point on the right.

Why is it important to protect this wetland?

Our native ecological communities are part of Australia's rich and diverse natural heritage. Their occurrence in the landscape enriches the environment in which we live, and provide many important biodiversity, social and economic functions. They are a signature natural asset important to local communities, landholders and to Indigenous cultures. There are therefore many reasons why it's important to keep what's left of the Karst Springs and Alkaline Fens, and to recover or expand remnants. These reasons include:

- The remaining wetlands provide habitat for many plants and animals, including drought refuges for itinerant animals and essential breeding and nursery areas for native fish, crustaceans and waterbirds.
- The ecological community includes habitat for at least 16 nationally threatened species and many migratory bird species. This includes species such as the Long-nosed Potoroo and Australian Grayling Fish, who's habitat elsewhere in Australia was badly affected by the 2019-20 fires.
- Wetland birds, bats and other animals can help to control pest rodents and insects that attack nearby crops or plantations and also play an important role in the pollination of native and crop plants.
- The wetlands are an essential clean water source to surrounding areas.
- Wetlands can sequester and store atmospheric carbon for thousands of years.
- They also provide a focus for local recreation activities and tourism.

Swamp Wallaby – Piccaninnie Ponds

How will the Karst Springs and Alkaline Fens be protected?

Together with threatened species, threatened ecological communities are protected under the EPBC Act as a matter of national environmental significance. The aim of listing is to prevent further decline and promote and help recovery through landholder and community efforts. Once listed under the EPBC Act, protection for threatened ecological communities comes down to three main things:

- Better management of bushland in and around threatened ecological communities
- Funding and programs for activities that improve or protect the threatened ecological communities
- Regulation of new activities that may significantly impact the threatened ecological communities.

How will national protection affect farmers and land managers?

How you may be affected if the ecological community is listed depends on:

- whether you have an occurrence of good quality Karst Springs and Alkaline Fens on your land; and
- what you intend to do with any such areas.
- Given the larger occurrences of this wetland are scattered across conservation reserves and with less than 500 ha on private land, the chances of having this ecological community on your property is very low.

Listing is intended to further support land managers who want to continue managing occurrences of wetlands that still remain in good quality, for future benefits.

Supportive practices have helped to retain wetland remnants. For instance, some remnants are intentionally set aside because they include watercourses or serve as shelter for stock and windbreaks for croplands and pastures.

If no new actions are intended, then the listing won't affect you. Land managers who want to retain a good quality wetland or intend to restore any wetlands on their properties may apply for funding to help with their conservation.

Landholders who have the threatened ecological community on their property may be able to access opportunities to manage threats that impact both natural systems and agricultural productivity (e.g. invasive plants and pest animals). Opportunities are available to restore remnants through current or future Australian Government natural resource management programs, such as National Landcare. Talk with your local NRM agency or Landcare group for more advice on any opportunities.

What about water management implications?

Listing the Karst Springs and Alkaline Fens ecological community would not affect existing water allocation processes under state-legislated Water Resource Plans. Buffer zones are recommended to protect the hydrological flows into the Karst Springs and Alkaline Fens but they are not considered part of the ecological community itself. There are already state and federal requirements to avoid impacts within buffer zones and to various threatened and migratory species.

Water related infrastructure projects with the potential to have a significant impact on the ecological community would need to be considered in the same way as is required already for other EPBC Act matters of national environmental significance that occur in the region such as threatened species, migratory species and Ramsar wetlands. It is important to note that water extraction will remain regulated by state governments.

National protection only applies to new actions likely to cause significant damage to occurrences of these wetlands that remain in relatively good condition.

Business as usual for many routine activities

The listing of a threatened ecological community under the EPBC Act will not prevent land managers from continuing to use land or water in the same way they were previously, providing they do not significantly change or intensify their activities.

It is important to note that the EPBC Act only regulates activities that have, or may have, a significant impact on a matter of national environmental significance, including threatened ecological communities. Whether or not an action is likely to have a significant impact depends on the sensitivity, value and quality of the environment which it impacts, and on the intensity, duration, magnitude and geographic extent of the impacts.

The normal activities of individual landholders, residents and Local Councils will typically not be affected by a listing. Routine property maintenance, land management and other established activities, such as most farming activities or ongoing road maintenance, are continuing activities and/or unlikely to have a significant impact. They do not require consideration under the EPBC Act.

For instance, the following actions are unlikely to require approval under the EPBC Act:

- continuation of existing grazing, cropping or horticultural activities
- maintenance of existing roads, fences, access tracks or firebreaks
- maintenance of existing farm gardens or orchards,
- maintenance of existing farm dams, weirs or water storages
- maintenance of existing pumps, irrigation systems and drainage lines
- replacement and maintenance of sheds, buildings, yards and fences
- control of weeds and management of pest animals on individual properties or roadsides

In all these activities, landholders are encouraged to avoid any severe impacts to ecological communities, and to help restore remnants. For example, landholders should try to avoid native vegetation clearance and detrimental hydrological changes in or adjacent to an ecological community, and protect them from nearby activities, such as spray drift from fertiliser, pesticide or herbicide sprayed in adjacent land.

Note that human settlements and infrastructure where an ecological community formerly occurred do not form part of the natural environment and are therefore not considered to be a part of a listed ecological community. This applies to sites that have been replaced by crops or exotic pastures, or in other situations where a listed ecological community occurs in a highly-degraded or unnatural state.

Referral of actions with significant impacts

The main consideration if the ecological community was listed would be to undertake an environment impact assessment and refer for approval a new activity that could significantly impact upon good quality areas of the wetland. Most activities are already considered through state and local vegetation and water regulations. EPBC Act referrals usually apply to major projects, for instance major new road works, new housing and industrial developments, or proposals to convert large areas of intact wetland for plantations or cropping.

There is little of these wetlands and surrounding native vegetation remaining, particularly on private land, but if it were listed activities likely to require referral include, but are not restricted to: clearing large areas of relatively good quality native vegetation for development on or close to an occurrence of the wetland; fragmentation through construction of large new roads, tracks or fencing through a wetland; significantly changing natural drainage and local water flow or recharge patterns; or major use of herbicides or fertilisers within a wetland. Some agriculture development activities may need approval, but only if you have relatively good condition Karst Springs and Alkaline Fens on your property and want to substantially change the way you use land or water in a way that will have a significant impact on the wetland.

In some cases, avoiding the need to refer or gaining approval for a particular activity that may have a significant impact may require using alternative ways to carry out the proposed activity to reduce impacts on a listed ecological community. These alternative ways are often required for state approval as well. Nevertheless, before you make any changes to the way you use your land that could result in irreversible or long-term significant loss of a protected ecological community, it is best that you first check to see whether EPBC Act approval is needed.

In particular if you thought you might have a significant impact, the requirement would be to:

- Check you have the right type of wetland present and if it's in good enough condition to be referred.
- Plan to avoid or minimise impacts to wetland occurrences, especially the best quality occurrences.
- Talk with the Australian Government Department of Agriculture, Water and the Environment.

Where can I get more information?

The draft Conservation Advice and other information about how to make a submission, including questions to guide your responses, are on the website of the Department of Agriculture, Water and the Environment:
http://www.environment.gov.au/biodiversity/threatened/nominations/comment/karst-springs-alkaline-fens

Advice about Australian Government environmental funding programmes (e.g. National Landcare or the Environmental Restoration Fund) can be found online at:
http://www.environment.gov.au/about-us/grants-funding

Australian Government natural resource management initiatives are located at:
www.nrm.gov.au

Information about the EPBC Act referral and assessment process is available on:
http://www.environment.gov.au/protection/environment-assessments/assessment-and-approval-process

Further information for farmers on the national environment law and agricultural development is available at:
http://www.environment.gov.au/land/farmers

If you need further information, contact the Department's Community Information Unit by:

- phone on 1800 803 772 (freecall); or
- email ciu@environment.gov.au

Karst Springs and Alkaline Fens - Piccaninnie Ponds