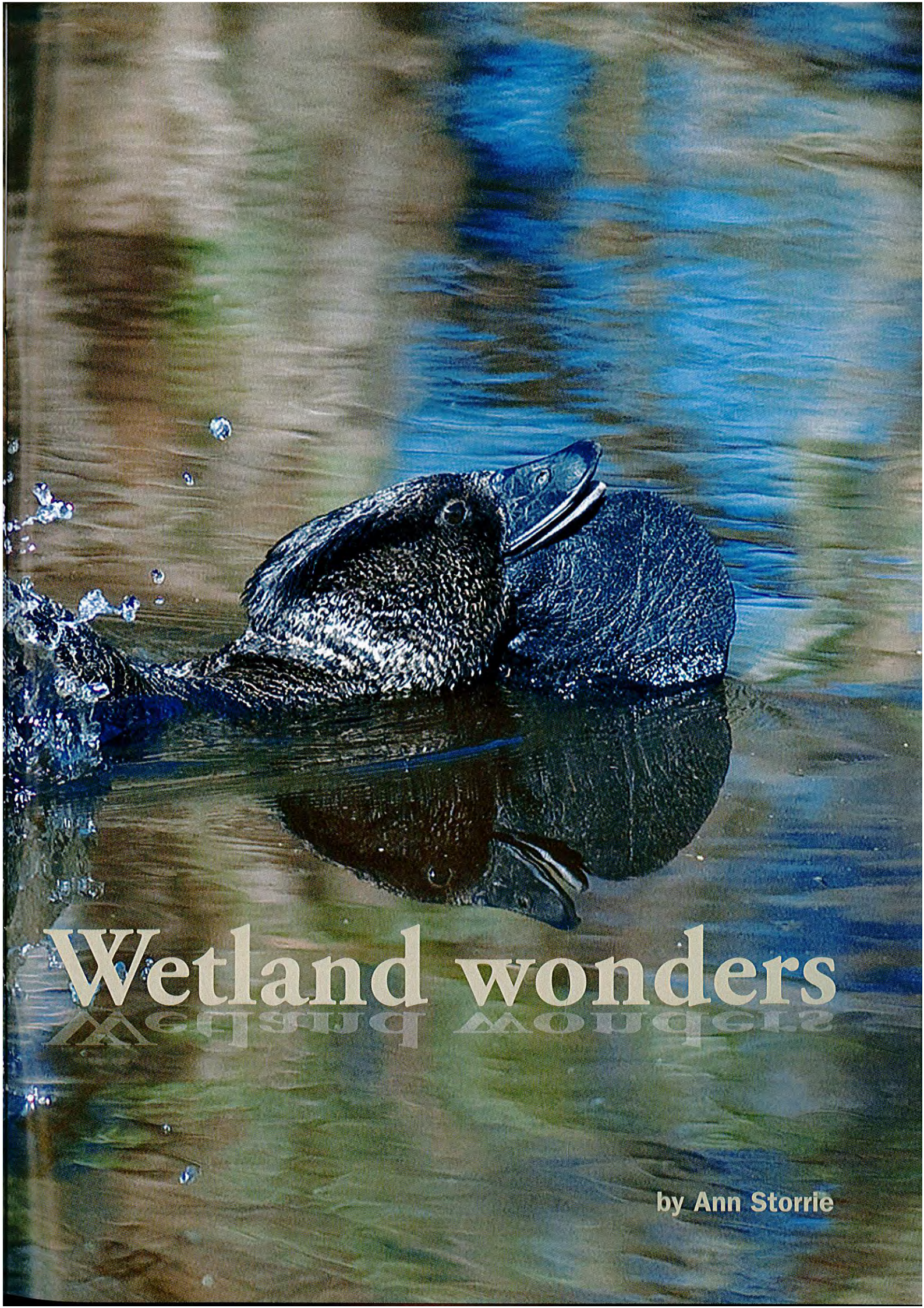


Imagine counting 33,000 waterbirds in one day and recording more than 60 species of waterbirds within an area of 1,115 hectares! These statistics and more were required to nominate the Vasse-Wonnerup wetland system, which extends east from the main township of Busselton in the State's south-west, as a wetland of international importance.



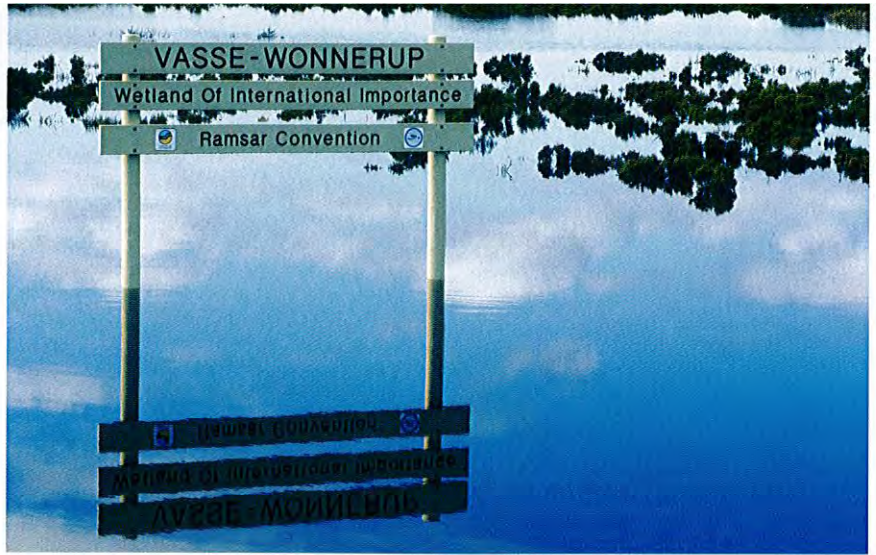
Wetland wonders

by Ann Storrie

The term 'wetland' refers to naturally occurring lakes, swamps, marshes, mudflats and billabongs that are wet on a regular, semi-regular or occasional basis. They can be protected under State or Commonwealth law.

If a wetland is considered of international importance—for example, if it is an important habitat for migratory birds, or it supports large numbers of waterbirds—it can be listed under the international *Convention on Wetlands of International Importance*. This convention is known as the Ramsar Convention as it was signed in the Iranian city of Ramsar in 1971. It provides the framework to manage and conserve these wetlands at both a national and international level. In Australia, special Commonwealth laws apply to Ramsar wetlands.

Australia became a contracting party to the convention in 1975. By 2008, 158 countries had signed the treaty, making a total of 1,828 wetland sites in the world (169 million hectares) protected under the Ramsar agreement. The wetlands are selected on a number of criteria including their ecological, botanical, zoological and hydrological importance. Under the convention, there is an expectation that the contracting parties will at least maintain and, where possible, enhance the values for which those wetlands have been listed. Australia currently has 65 Ramsar wetlands with 12 occurring in Western Australia.



The Vasse-Wonnerup wetland system

The Vasse-Wonnerup wetland system was nominated as a Ramsar wetland in 1990. Two main criteria were met for its acceptance to the convention: the area regularly supports more than 20,000 waterbirds, and it supports at least one per cent of the individuals of a population of one species or subspecies. To fulfil the second criterion, the Vasse-Wonnerup system supports at least one per cent of the Australian population of black-winged stilts (*Himantopus himantopus*)

and at least one per cent of the world's population of red-necked avocets (*Recurvirostra novaehollandiae*).

Monitoring of the wetlands and wildlife is carried out to comply with the regulations of the convention. The last survey was conducted during summer and autumn between 1998 and 2000. At the peak of this survey, the waterbird count totalled 37,000. In November 2000, the Ramsar site was extended in the Vasse-Wonnerup system to include all of one adjoining reserve, part of another and extra areas of Tuart Forest National Park.

Towns, tourists and tuart forest

This amazing wetland lies just over 200 kilometres south of Perth and is within one of WA's tourist hot spots. The main township of the rapidly expanding town of Busselton is just west of the wetlands. The new suburb of Port Geographe and the old town-site of Wonnerup are to the north of sections of the Vasse-Wonnerup wetlands, while farmlands skirt much of the system. Many birds benefit from the open pastures of the farms, especially ibis that regularly gather in their hundreds to feed on insects such



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Main Male musk ducks display a flamboyant courtship ritual of splashing water and loud whistles and emit a musky odour to attract females.

Photo - Ann Storrie

Above The Vasse-Wonnerup system is a Ramsar wetland of International Importance.

Photo - Dennis Sarson/Lochman Transparencies

Left Bird life at Vasse-Wonnerup.
Photo - Ann Storrie



Far left Quendas, or southern brown bandicoots, live in sedges close to the water's edge.

Left Western grey kangaroos from Tuart Forest National Park drink at Malbup Creek and are often seen close to the bird hide.

Below A great egret comes in to land on the Vasse-Wonnerup wetland.

Photos - Ann Storrie

as grasshoppers. Many frogs and snakes also thrive in both flooded and dry pastures, and provide valuable food for these birds.

East of the wetlands lies the last substantial area of tuart forest in the world. Two thousand hectares of magnificent tuart trees (*Eucalyptus gomphocephala*) are home to many birds and mammals, some of which rely on the wetlands for food and water. Hollows within the old tuarts provide important breeding sites for the Australian wood duck (*Chenonetta jubata*), Australian shelduck (*Tadorna tadornoides*) and others. Western grey kangaroos (*Macropus fuliginosus*) are abundant in the forest and the quenda, or southern brown bandicoot (*Isodon obesulus*), thrives in the sedges

that grow close to the water's edge.

It is easy to view many species of birds in this wetland. The Department of Environment and Conservation (DEC) installed a raised boardwalk and bird hide on a section of the wetland known as Malbup Creek, just north of Tuart Forest National Park. The boardwalk branches from the night-spotting possum walk off Layman Road in Wonnerup. The best times to visit the hide are in the early morning or late afternoon. Common species that you may see close-up from the hide include swans, ducks, grebes, coots, pelicans, spoonbills, ibis, herons, cormorants, sandpipers, stints, terns and egrets. Descriptions and photos of the most common birds are detailed in posters on the walls within the hide.

Breeding and migratory birds

The largest regular breeding colony of black swan (*Cygnus atratus*) in WA occurs in these wetlands. More than 150 pairs have been recorded. They nest on mounds of vegetation (samphire and introduced grasses) that are often used for several years, built up as an island surrounded by shallow water. Usually between three and nine eggs hatch in early spring after 40 days incubation and one or both parents care for the cygnets for several months. By November, several thousand swans may have gathered to feed in the Vasse-Wonnerup wetlands.

The area supports one of the largest breeding colonies of ibis in the State. Australian white ibis (*Threskiornis molucca*) and straw-necked ibis (*Threskiornis spinicollis*) breed in melaleuca paperbark trees that grow in





wetlands of the adjoining floodplain. Egrets and cormorants often join the ibis and the trees become a mass of large white and black birds, squabbling for position and weighing down the branches. During summer when the young mature, the early morning sky is filled with hundreds of ibis that fly in a 'V' formation to the surrounding paddocks to feed during the day. The sky is filled again in the evening as they return to roost in the paperbark trees.

Migratory wading birds from countries such as Siberia and China visit the wetlands during spring and summer. These tiny grey-brown birds, some of which weigh less than 30 grams, are protected under the China–Australia, Japan–Australia and Republic of Korea–Australia migratory bird agreements.

One of the earliest to arrive, in late August, is the curlew sandpiper (*Calidris ferruginea*). These have long, downward-curved bills that they insert fully into the mud or sand to find food. They eat mainly aquatic worms, crustaceans and molluscs. The curlew sandpiper is also one of the last to leave Australia, sometimes staying until the first week in May. They fly back to northern Siberia where they breed in June and July.

Some of the other species of migratory wading birds that visit the Vasse-Wonnerup wetlands include the wood sandpiper (*Tringa glareola*), sharp-tailed sandpiper (*Calidris acuminata*) and common greenshank (*Tringa nebularia*). One of the rarest waders to visit Australia, the long-toed stint (*Calidris subminuta*), is commonly seen in these wetlands.

Swamped by birds

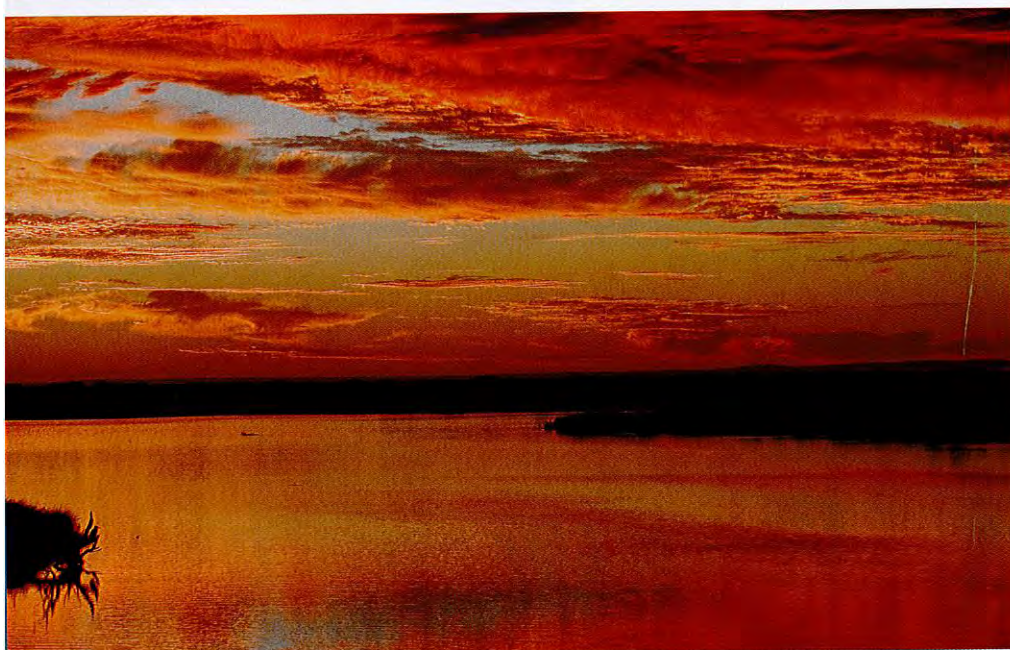
Many Australian waders also visit in their thousands. Avocets fly in from lakes in the arid interior, some as far away as Lake Eyre. Pelicans fly

Top Vasse-Wonnerup wetlands.

Centre left Grey teal.
Photos – Jiri Lochman

Centre right Yellow-billed spoonbill.

Left Wonnerup wetlands at sunset.
Photos – Ann Storrie





Above The area supports one of the largest breeding colonies of straw-necked ibis in Western Australia.

Photo - Geoff Taylor/Lochman
Transparencies

Above right Whistling kite.

Photo - Dave Watts/Lochman
Transparencies

Below Migratory wading birds from as far away as Siberia visit the wetlands in summer.

Photo - Ann Storrie

from northern Australia and ducks congregate here from throughout the south-west region. Up to 14,000 grey teal ducks (*Anas gracilis*), 4,000 Pacific black ducks (*Anas superciliosa*) and more than 6,000 Australian shelducks (*Tadorna tadornoides*) have been recorded in the Vasse-Wonnerup wetlands.

As the waters of the wetlands dry out in summer, many birds congregate in the shallows to feast on invertebrates, algae and schools of stranded fish. Spoonbills sweep through the mud to sift out crustaceans, water insects, molluscs and small fish. Dabbling ducks, such as the grey teal, up-end for aquatic plants, seeds and plankton, while diving ducks such as the musk duck, dive for small fish and invertebrates. Heron stalk their prey such as fish and amphibians, jabbing and sometimes spearing them with their sharp, pointed beaks. Egrets hunt in a similar manner.

Flocks of pelicans swim in formation, herding fish into the shallows, then simultaneously dip their bills into the water to catch their prey. Not to be outdone, thousands of silver gulls noisily join in the fray. Raptors such as swamp harriers (*Circus approximans*), whistling kites (*Haliaster sphenurus*) and ospreys (*Pandion haliaetus*) cruise over the area, sending flocks of waterbirds into the sky. A pair of white-bellied sea eagles (*Haliaeetus leucogaster*) that nest nearby also come to watch and wait for an easy meal.

Conservation and the future

Conservation measures have and are being undertaken to preserve this important wetland. The waters of the Vasse-Wonnerup system are fresh in winter and saline in summer. Floodgates were installed on the outlet channels of the Vasse and Wonnerup estuaries to regulate the inflow of seawater and to minimise flooding. The Department of Water monitors water quality. Monitoring of fish behaviour and the waterbirds is undertaken by DEC.

Although the wetland does experience periods of very poor water quality, particularly when large algal blooms occur in summer and autumn, past management of water levels and salinity has proved to be satisfactory for the waterbirds. A monitoring program



that aims to detect changes in the health of fringing vegetation has also been developed. Control of introduced animals such as foxes and rabbits is undertaken within the site.

Despite these efforts, a big question mark hangs over the future of these wetlands. Although waterbird counts increased from 1990 to the 1998-2000 studies, peak numbers of some species have declined. The blue-billed duck (*Oxyura australis*), great egret (*Ardea alba*), great cormorant (*Phalacrocorax carbo*) and curlew sandpiper (*Calidris ferruginea*) have all declined in number and the status of several other species is uncertain.

Further surveys are warranted and many questions remain unanswered. Is the problem local or regional? Are the curlew sandpipers' staging sites in east Asia threatened? Degradation of habitat appears to be the major contributing factor to all these birds' decline. Urban expansion and coastal development that is encroaching on the Vasse-Wonnerup wetlands causes local disturbance. Noise, general pollution and, of course, additional human presence is of prime concern. Action needs to be taken now to not only conserve the local populations of wildlife, but also those in regional and widespread areas of our planet. If these magnificent and internationally renowned wetlands are in danger, then so are we.



Ann Storrie is an accomplished underwater and land nature photographer. She has co-authored and photographed several of the Department of Environment and Conservation's publications including *Beneath Busselton Jetty* and *Wonders of Western Waters*. Ann can be contacted by email (naturescapes.au@hotmail.com).

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The Vasse-Wonnerup wetland system is recognised as a wetland of international importance for its waterbird populations.

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