

# Action Statement

Flora and Fauna Guarantee Act 1988

No. 78

## Bush Stone-Curlew

### *Burhinus grallarius*

#### Description and Distribution

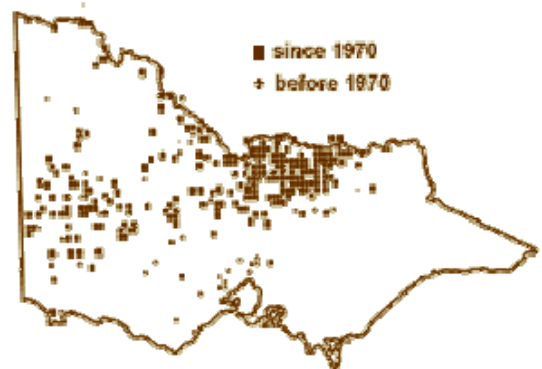
The Bush Stone-curlew is found principally in the coastal and subcoastal regions of mainland Australia (Blakers et al. 1984; Robinson 1994a). It is still moderately common in northern and north-eastern Australia, but in southern Australia and the arid region its range has declined markedly in the past 100 years (Blakers et al. 1984; Marchant & Higgins 1993).

In Victoria the main distribution is on the Northern Plains, in an area bounded roughly by Wodonga, Seymour and Kerang. Other apparent strongholds comprise the Wimmera Plains and Northern Goldfields regions between about Nhill, Edenhope and Maryborough, the Millicent Plains to the west and south of the Grampians, and the Army reserves at Puckapunyal and Mangalore. Scattered populations exist along the Murray Valley west of Kerang, in north-central Victoria and in the Mallee (Atlas of Victorian Wildlife; Marchant & Higgins 1993).

Although Bush Stone-curlews are taxonomically classified as wading birds (order Charadriiformes), they are classed ecologically as woodland birds (Robinson 1991). In Victoria they are found predominantly in lowland grassy woodland and open forest remnants of Grey Box *Eucalyptus microcarpa*, River Red Gum *E. camaldulensis* or Yellow Box *E. melliodora*, with a ground cover of low, sparse native grass and few or no shrubs (Johnson & Baker-Gabb 1994). They also occur in box-ironbark forests (L. Rowley, pers. comm.). Within these environments, birds occupy a permanent, loosely-defined home range of about 250-600 hectares. In the breeding season they defend a 10-25 hectare territory around the nest (Johnson & Baker-Gabb 1994).



Bush Stone-Curlew *Burhinus grallarius*  
Illustration by Alexis Beckett



Distribution in Victoria

By day, birds shelter on the ground in lightly timbered habitats amongst fallen tree debris, where their mottled plumage provides camouflage and the open terrain provides good visibility. These daytime roosts are typically found in woodland patches that are less than 1 km from other patches of similar habitat and less than 250 metres from water (Johnson & Baker-Gabb 1994; Webster & Baker-Gabb 1994). At night, Bush Stone-curlews travel as far as 3 km from the roost site to feeding grounds in paddocks, swamps or woodland remnants. Their diet is primarily insects, but includes a wide variety of other foods such as seeds, small fruit, spiders, centipedes, snails, frogs, reptiles and even rodents (Johnson & Baker-Gabb 1994).

Nests consist of a simple scrape or clearing. Eggs (usually two) are laid directly on the ground. The nest site is typically in or on the edge of woodland patches where there is good ground-level visibility for at least 100 metres in every direction (Johnson and Baker-Gabb 1994). The same nesting areas tend to be re-used in successive years, and may be used for as long as 30 years. They are sometimes abandoned if the grass around the nest becomes too tall (more than about 15 cm (Johnson & Baker-Gabb 1994).

### Conservation Status

Current Status

CNR (1995)           vulnerable.

SAC (1994)           Threatened.

ANZECC (1995)    rare in Australia

The Bush Stone-curlew has been listed as a threatened taxon on Schedule 2 of the Flora and Fauna Guarantee Act 1988.

### Reasons for Conservation Status

Bush Stone-curlews were formerly widespread and common throughout northern, western and central Victoria (Emison et al. 1987) but their range has declined markedly in the past 100 years, especially since about 1950 (Marchant & Higgins 1993, D. Robinson unpubl. data). They are now extinct in many former haunts south of the Great Dividing Range (Emison et al. 1987; Johnson & Baker-Gabb 1994). Even within their stronghold in northern Victoria, Bush Stone-curlews are distributed sparsely (Johnson & Baker-Gabb 1994) and are continuing to decline in abundance. A recent survey of 72 sites on the Northern Plains demonstrated a 42% decrease in abundance in just six years (Webster & Baker-Gabb 1994). Longer-term records by landholders further indicate that densities on some properties have declined from four to one pair per property in the last 30 years,

and that large autumn flocks are no longer seen (Johnson & Baker-Gabb 1994).

There has been no state-wide census of the population size of the Bush Stone-curlew in Victoria. However, within a 1.1 million ha stronghold on the Northern Plains, the population size is estimated to consist of some 300 to 330 breeding birds on private land (Johnson & Baker-Gabb 1994). An extrapolation from those numbers suggests that the total Victorian population consists of between 500 and 1000 breeding pairs.

The principal cause of the species' decline has been the clearance and continuing fragmentation of more than 85% of its preferred woodland habitat in Victoria (Woodgate & Black 1988, OCE 1992). The principal current threat to the species is predation by Red Foxes (*Canis vulpes*) and a potentially increasing rate of predation by feral Cats (*Felis catus*) (Marchant & Higgins 1993; Johnson & Baker-Gabb 1994). Other threats are:

- increasing intensification of land use (OCE 1992);
- rising groundwater (OCE 1992);
- lack of tree regeneration (Bennett et al. 1994);
- widespread conversion of native and volunteer pastures to exotic pastures (OCE 1992, Robinson 1993a);
- grazing pressure (Johnson & Baker-Gabb 1994);
- continuing clearing and 'tidying' of trees and fallen wood (Johnson & Baker-Gabb 1994);
- firewood collection; and
- widespread use of pesticides in cropping districts, and consequential impacts on the food chain and water quality.

In its final recommendation, the Scientific Advisory Committee (1994) determined that the Bush Stone-curlew is:

- in a demonstrable state of decline which is likely to result in extinction;
- significantly prone to future threats which are likely to result in extinction; and
- very rare in terms of abundance and distribution.

### Major Conservation Objectives

The major conservation objectives, within the range of the species, are to:

- prevent any further decline in population size;
- double the population of breeding birds over the next 20 years;
- double the amount of woodland sympathetically managed for Bush Stone-curlews on private land, in every NRE Region where there are Bush Stone-curlews, in the next 10 years;

- double the area of woodland managed for conservation on public land in every NRE Area with Bush Stone-curlews over the next 10 years; and
- increase awareness among landholders about the plight of the Bush Stone-curlew and the actions needed to conserve it.

## Management Issues

### Ecological Issues Specific to the Taxon

Studies of the ecological characteristics of threatened birds in Victoria and other parts of Australia have demonstrated that the species most at risk comprise woodland birds weighing more than 500 g, ground-feeders and ground-nesting birds (Robinson 1991, Garnett 1992). As a ground-feeding and ground-nesting woodland bird that weighs more than 500 g, the Bush Stone-curlew must be regarded as particularly prone to extinction. This risk of extinction may be exacerbated by the Bush Stone-curlew's social behaviour and by the low rates of recruitment of young birds into the breeding population (Webster & Baker-Gabb 1994). Bush Stone-curlews are sedentary, and pairs remain together in the same territory throughout their lives, probably until one partner dies (Marchant & Higgins 1993). But because Bush Stone-curlews are long-lived, pairs may occupy the same territory for 10-30 years (McGill 1947; Johnson & Baker-Gabb 1994). Young birds hence may be unable to establish territories, as all of the available habitat is already occupied by adult pairs (Webster & Baker-Gabb 1994).

The major cause of the Bush Stone-curlew's decline has been extensive clearing of its preferred woodland habitat for agriculture. Bush Stone-curlews need woodland remnants with sparse grass cover and abundant fallen timber and tree litter for daytime roosts and feeding habitat (Johnson & Baker-Gabb 1994). Throughout Victoria, more than 85% of their woodland habitat has disappeared and, in the Northern Plains region, where the largest populations persist, 92% of the original woodland area has been cleared for grazing and crops (Woodgate & Black 1988, DPUG 1990). Furthermore, much of the remaining woodland is being degraded by increasing salinity, altered watertables, intensified land use, insect attack, weed invasion, grazing pressure, lack of tree regeneration, firewood collection and incremental clearing of small stands of trees or individual trees from within stands — all of which either increase the height of grasses or remove camouflage for sheltering birds (Johnson & Baker-Gabb 1994; Webster & Baker-Gabb 1994). In the longer term, the degradation of additional woodland patches will increase the distance between patches of suitable habitat to such an extent that Bush Stone-curlews will no longer be

able to survive in local areas unless there is revegetation.

Persistent grazing further diminishes the suitability of Bush Stone-curlew habitat by decreasing the amount of litter and the abundance of litter-dwelling invertebrate prey (King & Hutchinson 1983; Scougall et al. 1993; Bromham 1994). It thus may not be compatible with the Bush Stone-curlew's foraging requirements, even though grazing is sometimes compatible with their roosting and nesting habits (Johnson & Baker-Gabb 1994). At roost sites or nest sites with grasses that grow too tall, grazing may benefit Bush Stone-curlews by maintaining visibility at ground level for sitting birds (Johnson & Baker-Gabb 1994). Conversely, over-grazing will encourage the invasion of exotic grasses, and exacerbate the need for future management of grass growth by grazing (G. Johnson, pers. comm.).

Cultivation and other intensive land uses close to daytime roost sites or nesting areas are also generally detrimental to the Bush Stone-curlew. A survey of 72 sites in northern Victoria in 1991 recorded a 42% decrease in the Bush Stone-curlew's abundance in the previous six years (Webster & Baker-Gabb 1994). Of the 31 farms on which landholders reported a change in farm management practices in those six years, 64% of landholders also recorded a decline in numbers of Stone-curlews. Changes on the farms included: tree clearing; cultivation, irrigation or improvement of pastures; removal of fallen tree debris; increased chemical use; tree planting; altered stocking rates; and subdivision of rural land (Webster & Baker-Gabb 1994). Long-term conservation of Bush Stone-curlews thus will require the protection of low-intensity land-use areas around known sites or other areas of suitable habitat (Johnson & Baker-Gabb 1994).

Because Bush Stone-curlews nest and feed on the ground, they are extremely vulnerable to predation by Red Foxes and Cats. Furthermore, rates of predation by foxes may be significantly higher than in the past, because fox numbers have increased since the removal of government bounties for fox scalps in 1977 (Menkhorst 1995) and because commercial prices for pelts have fallen in the past decade (Mansergh & Marks 1993). Thus, although the frequency of Stone-curlew mortality as a result of fox predation is not known, it is significant that nesting success and survivorship are higher at two sites in northern Victoria with predator-proof fencing (Johnson & Baker-Gabb 1994) and on some offshore islands without feral predators in other parts of Australia (Marchant & Higgins 1993). Pilot programs have begun to monitor the effects of predator control on Bush Stone-curlew populations at Puckapunyal (Coman & Robinson 1995). Further areas need to

be fenced off from foxes and cats as secure nesting sites.

### **Wider Conservation Issues**

The Bush Stone-curlew is one of a suite of woodland species of birds that have become threatened as a consequence of clearing and modification of grassy woodlands (Robinson 1991; DCE 1992a). Other threatened species of woodland bird at risk in Victoria comprise the Grey-crowned Babbler (*Pomatostomus temporalis*), Apostlebird (*Struthidea cinerea*), Red-tailed Black-Cockatoo (*Calyptorhynchus banksii*), Superb Parrot (*Polytelis swainsonii*), Swift Parrot (*Lathamus discolor*), Regent Honeyeater (*Xanthomyza phrygia*), Ground Cuckoo-shrike (*Coracina maxima*) and White-browed Treecreeper (*Climacteris affinis*). There are about 40 other species of woodland birds which are still widespread in Victoria but have declined in abundance and are likewise threatened by habitat loss and degradation (Robinson 1993b). Protection of remnant woodlands will assist with the conservation of all of these species.

Protection of these woodland remnants will help conserve the grassy woodland ecosystem. Native grasslands and grassy woodlands are the two most threatened ecosystems in Victoria (DCE 1992a) and are in urgent need of protection (Frood & Calder 1987). In Victoria, less than 1% of the former grassland and grassy woodland area is protected in conservation reserves (DCE 1992a). Within the stronghold of the Bush Stone-curlew in northern Victoria, some 2500 ha of grassy woodland is protected in conservation reserves, although more than one third of that area is presently grazed (Robinson unpublished data). The addition of more woodland areas to the conservation estate will significantly enhance the chances of survival and maintenance of grassy woodland ecosystems and associated wildlife.

In the long term, the addition of new woodland areas on private land by revegetation will be the other principal means of providing more habitat for the Bush Stone-curlew. Whether the revegetation is done specifically for Bush Stone-curlews or for land conservation, the benefits of revegetation accord with the major objectives of various government strategies, including the draft Flora and Fauna Guarantee Strategy (DCE 1992b), Landcare and the Salinity Program. The protection of Bush Stone-curlews and their habitat also accords with the objectives of the Catchment and Land Protection Act 1994.

Controlling Red Foxes and Cats in areas with populations of the Bush Stone-curlew will benefit other native wildlife and help reduce livestock losses (Mansergh & Marks 1993). Predation by foxes on native wildlife is listed as a threatening

process under the Flora and Fauna Guarantee Act, as is predation by cats on native wildlife.

### **Social and Economic Issues**

Because the Bush Stone-curlew is largely found on private land or on Crown land reserves managed for purposes other than conservation, the actions needed to protect the species will have some social and economic costs for the various land managers. However, the actions proposed mostly entail small conservation efforts on many different properties and parcels of public land, and will not have a major economic cost for any individual landholder. Additional support for landholders for many of the proposed actions under the Salinity and Landcare programs, will have land protection and productivity benefits in the long term.

### **Public Land**

The main economic issue with regard to public land is the loss of grazing land and loss of government revenue.

Within the Bush Stone-curlew's range in Victoria, Crown land reserves as defined in Section 4 of the *Crown Land (Reserves) Act 1978* contain important intact remnants of woodland vegetation and significant areas of Bush Stone-curlew habitat. However, around half of these Crown land reserves are grazed under licence (Robinson 1994b), providing some revenue to government and additional grazing land to local landholders.

In some instances, excluding grazing from these licensed lands is essential to adequately protect Bush Stone-curlew sites. Alternatively, licensed Crown land reserves identified as having high conservation values could be offered to licence holders for the minimum fee with the proviso that the areas are not to be grazed, or with special conditions attached to the licence to ensure that grazing maintains the biological value of those reserves. Cancellation of licences to manage public lands for the conservation of the Bush Stone-curlew consequently will entail some loss of land for the affected licence holders and, on some public lands, compensation of the licence fee to the landholders (*Crown Lands Act (Amendment) Act 1994*). However, the areas involved total less than 1% of the total land area within the Bush Stone-curlew's range (Robinson 1994b).

Grazing in State Forests is systematically reviewed in the Forest Management planning process which will take account of Bush Stone-curlew conservation. The area of woodland involved is small and is not the principal grazing ground for licencees.

Management of Crown land reserves for the conservation of the Bush Stone-curlew and other



woodland wildlife will have broad environmental benefits by permitting regeneration and revegetation of overgrazed land, stabilisation of the soil and stream banks, improvements in water quality and control of groundwater (OCE 1992). Fox-control programs initiated on public land will have economic benefits for surrounding landholders.

At Puckapunyal, extensive fox-baiting programs will have benefits for adjoining landholders as well as leaseholders on the reserve. There also is the opportunity here to educate the soldiers and staff about the plight of the Bush Stone-curlew and ensure compatible management.

A similar opportunity for extension programs and sympathetic management exists at golf courses. Bush Stone-curlews are known from at least twenty public and private golf courses throughout Victoria and appear to have moderately high rates of breeding success there. The provision of practical support to those golf courses' committees of management may encourage the development of mutually beneficial projects such as fox control and revegetation works.

#### **Private Land**

The majority of Bush Stone-curlews in Victoria are found on hundreds of private properties across the state (LCC 1988, Johnson & Baker-Gabb 1994). In many situations, conservation of the Bush Stone-curlew on those properties will require no more than maintaining existing farm management practices in those parts of the farm that have Stone-curlew habitat (Webster & Baker-Gabb 1994). But given the rapid change in farming practices (Webster & Baker-Gabb 1994), an education program is needed that informs land managers about the ecological effects of intensifying land use, or of removing fallen timber.

Further work is also needed to understand the wider implications of these recent changes in farming practice. In particular, their importance to farmers and farming, whether they could have been easily avoided or modified to reduce their impact on the Stone-curlew and other wildlife, and whether they are associated with particular events such as subdivision or property sale. This type of information is essential for determining the appropriate actions needed to assist landholders in protecting the Bush Stone-curlew or stone-curlew habitat. Without that information and associated education program, many of the proposed actions for the conservation of the Bush Stone-curlew will never succeed.

Broadly, the extension and improvement of Bush Stone-curlew habitat will require:

- the fencing out of some woodland areas;

- the removal or reduction of grazing from some woodland areas;
- the establishment or maintenance of buffer zones around woodland remnants;
- the establishment of new woodland habitat;
- changes to, or retention of, certain farm-management practices on parts of the farm; and
- the deliberate retention of fallen branches.

The first five of these actions have some economic costs because of the loss of land for some forms of production. Landholders may also be unwilling to fence off areas or leave fallen timber lying on the ground because of the risk of fire and the harbouring of pests. These latter issues need to be addressed if conservation programs for the Bush Stone-curlew and other threatened species of wildlife are to succeed.

All proposed actions for private land have environmental benefits for landholders in terms of soil and groundwater quality, the addition of new woodlots to provide firewood, windbreaks and shade, and the addition of habitat for more insect predators and alternative industries (e.g. honey production). Fox control programs to protect the Bush Stone-curlew could help reduce the loss of lambs and ewes.

Various studies have proposed or established tax and rate relief schemes for landholders who donate part of their productive land to nature conservation or land protection (DoA 1991, LCRPA 1994). Because the Bush Stone-curlew is found primarily on private land, realistic funding schemes are needed to provide landholders with an income commensurate with the value they would have earned from the land. A range of schemes have been developed or proposed in Australia (Robinson 1993a; Crosthwaite 1995) and overseas, and development and the application of such schemes would have significant conservation benefits for threatened wildlife in rural lands.

#### **Previous Management Action**

##### **Research and Survey**

A 12-month study of the distribution, abundance and ecology of the Bush Stone-curlew in northern Victoria was completed in 1986 (Johnson & Baker-Gabb 1994), and a repeat survey of sample of sites in northern Victoria was conducted in 1991 to monitor changes in status (Webster & Baker-Gabb 1994). Both studies made detailed recommendations for the conservation of the Bush Stone-curlew in Victoria, most of which are included here.

### **Predator Control**

Cats and Red Foxes have been controlled at Puckapunyal and Mangalore for many years (Johnson & Baker-Gabb 1994), but in 1994, the Australian Army began a systematic eradication program. Monitoring has begun to test whether this program has any effect of numbers of Bush Stone-curlews and other species of native wildlife (Coman & Robinson 1995).

### **Habitat Protection on Private Land**

Some woodland remnants on private land in northern Victoria have been fenced off for the conservation of the Bush Stone-curlew, Grey-crowned Babbler, Superb Parrot and Apostlebird.

### **Community Information and Education**

A Land for Wildlife leaflet on the Bush Stone-curlew was produced in 1993 for distribution from NRE Regional offices. Articles on the Bush Stone-curlew and the need to leave fallen timber have appeared in the Land for Wildlife Newsletter and local papers.

### **Intended Management Action**

BA = Birds Australia; BOCA = Bird Observers' Club of Australia; CMSA = Catchment Management and Sustainable Agriculture, NRE; EA = Environment Australia; FF = Flora and Fauna Program, NRE; FS = Forests Service, NRE; PV = Parks Victoria

### **Public Land Management**

1. Identify Crown land reserves that are important to the Bush Stone-curlew, and arrange for the conservation of those reserves for the species (e.g. fencing, signposting, weed control, predator control). (PV)
2. Prohibit firewood collection at key sites.
3. Review grazing licences on Crown land with populations of Bush Stone-curlews or with Bush Stone-curlew habitat to give priority to conservation. (NRE)
4. Give priority to feral predator control programs at important sites within the Bush Stone-curlew's range, with the aim to reduce predation in 40 reserves within the Bush Stone-curlews's range from feral predators. (PV, FF)
5. Provide guidelines on Bush Stone-curlew conservation to the Army Corps at Puckapunyal and Mangalore. (FF, Army)
6. Target golf courses within the species' range for the Land for Wildlife scheme, and provide advice on increasing the size and quality of

habitat for the Bush Stone-curlew and other woodland wildlife. (FF)

### **Private Land Management**

7. Identify districts or habitats with comparatively dense populations of the Bush Stone-curlew (from Johnson & Baker-Gabb 1994 and the above surveys) as the focus of local conservation programs. (FF). Within the districts identified in action 7:
8. Provide landholder and community extension services relating to the Bush Stone-curlew and other threatened woodland species in the woodlands region. (FF, CMSA)
9. Through programs such as Land for Wildlife and Landcare, encourage landholders in Bush Stone-curlew areas to initiate fox control programs. (CMSA, PV, FF)
10. Use the provisions of the Domestic (Feral and Nuisance) Animals Act 1995 to control stray cats and to improve the control of owned cats in key Bush Stone-curlew habitat. (FFB, shires)
11. Encourage landholders to leave fallen branches and debris on the ground beneath trees. (FF, CMSA)
12. Under the Land Protection Incentive Scheme and Landcare program, encourage landholders to fence off woodland remnants that are in unimproved pasture and have an intact layer of native ground-cover plants, to control grazing. (FF, CMSA)
13. Encourage landholders to increase the size of existing remnants, to establish new plantations of indigenous species of trees and shrubs, and to retain or establish buffer zones of unimproved, uncultivated pasture around woodland remnants. (FF, CMSA)

### **Extension**

14. Encourage the formation of a landholder and community-based Friends of the Bush Stone-curlew group. (BOCA)
15. Launch an education program about the mutual benefits of fox control to landholders and native wildlife, using the Bush Stone-curlew as an example. (FF, CMSA)

### **Survey, Monitoring and Research**

16. Reclassify the Bush Stone-curlew as endangered in Victoria. (FF)
17. Survey the distribution and abundance of the Bush Stone-curlew in western Victoria and along the Murray Valley, and on Crown land reserves throughout the species' range,

especially water frontages, Bushland Reserves and State Forests. (FF)

18. Encourage an investigation of the effects of fox predation on the survivorship and nesting success of Bush Stone-curlew populations in rural districts. (BA, EA)
19. Investigate appropriate grazing strategies for different environments that conserve the Bush Stone-curlew's habitat but allow some grazing to reduce the threats of fire, weed invasion and creation of harbour for pests. (FF, universities)
20. Support the monitoring program at Puckapunyal to evaluate the effects of fox control on the Bush Stone-curlew's nesting success and survivorship. (Army)

### **Other Desirable Management Action**

21. Encourage a post-graduate study into the species' demography to ascertain whether young birds are surviving their first year and establishing themselves in the population as breeding birds, or whether the population consists primarily of established pairs of adult birds. (universities)
22. Provide input into programs such as the Land Protection Incentive Scheme, Salt Action and Landcare, and into Catchment and Land Protection Boards, to develop regional strategies that incorporate nature conservation (NRE).
23. Encourage surveys of the Bush Stone-curlew as part of Birds Australia's Birds on Farms program to examine the use of plantations by Bush Stone-curlews. (BA)
24. Review current agricultural licences on all Crown lands that contain known Bush Stone-curlew sites or Bush Stone-curlew habitat as defined here, to give priority to nature conservation. (NRE)

### **Legislative Powers Operating**

#### **Legislation**

Flora and Fauna Guarantee Act 1988 — provides legal powers for the protection of Victoria's native wildlife; requires any public authority to be administered so as to have regard to the flora and fauna conservation and management objectives of the Act.

Wildlife Act 1975 — regulates the taking and possession of wildlife.

Planning and Environment Act 1987: provides for control of clearing of native vegetation on private

and public land under amendment S17 to all planning schemes.

Crown Lands Acts (Amendment) Act 1994 — permits and regulates the grazing of public lands defined under Section 4 of the Crown Land (Reserves) Act 1978.

Crown Land (Reserves) Act 1978 — provides for reserving areas as public land and for making a specific reservation status for existing public land.

Catchment and Land Protection Act 1994 — provides for the integrated management of all land within discrete catchments, in particular controlling the use of land, the control of pests and weeds and the protection of land and water resources and their associated plant and animal life.

### **Licence/Permit Conditions**

NRE will not generally support applications to clear woodland vegetation from areas of Bush Stone-curlew habitat, except where human safety is an issue.

A permit under the Wildlife Act to trap, take or possess the Bush Stone-curlew will be issued only if NRE is satisfied that the proposal directly benefits the conservation of the species

### **Consultation and Community Participation**

Consult with relevant NRE staff, landholders, landholder groups and ornithological organisations to facilitate the conservation of the species. In particular, staff from Crown Land and Assets and Parks Victoria will consult to determine transfer of management responsibility for some Crown lands to Parks Victoria. There will likewise need to be consultation between FFB and the Forests Service to facilitate the protection of some woodland areas within State Forests from grazing or timber harvesting (e.g. at Barmah State Forest, Goulburn State Forest, Gunbower State Forest).

NRE staff will provide advice to Catchment and Land Protection Boards to ensure that grazing licences on Crown land reserves with Bush Thick-knees or Bush Thick-knee habitat are reviewed to give priority to nature conservation. Catchment and Land Protection Boards will be advised of the actions to be undertaken in the implementation of this Action Statement.

### **Implementation, Evaluation and Review**

The Managers of NRE's North-East, North-West and South-West Regions will coordinate the implementation of this Action Statement. Primary responsibility for implementation and assessment of the effectiveness of the management actions lie

with CALM staff, Parks Victoria staff and Land for Wildlife officers. The Action Statement will be reviewed in 2001.

## Contacts

### Management

NRE planning officers, extension officers and Park rangers in North West, South West and North East Regions of NRE.

### Biology

Glen Johnson, FFG Officer, NRE Wodonga  
Dr David Baker-Gabb, RAOU  
Rick Webster, Ecosurveys, Deniliquin

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Further information can be obtained from Department of Sustainability and Environment Customer Service Centre on 136 186.

Flora and Fauna Guarantee Action Statements are available from the Department of Sustainability and Environment website: <http://www.dse.vic.gov.au>

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