



RECOVERY TEAM Annual report

THREATENED SPECIES AND/OR COMMUNITIES RECOVERY TEAM

PROGRAM INFORMATION		
Recovery Team	Albany Threatened Flora	
Reporting Period Submission date 31 March	DATE FROM: 1/1/14	DATE TO: 31/12/14
Current membership		
	Member	Representing
Chair	Sarah Comer	DPAW
Exec Officer	Sarah Barrett	DPAW
Members	Linda Strahan	Albany Wildflower Society
	Libby Sandiford	Albany Wildflower Society
	John Tucker	Community member
	Margaret Pieroni	Community member
	Merle Bennett	Ravensthorpe Wildflower Society
	Andrew Brown	DPAW
	Dave Coates	DPAW
	Anne Cochrane	DPAW
	Rebecca Dillon	DPAW
	Steve Hopper	UWA
Dates meetings were held	9/5/13 & 12/11/13	
Highlights of achievements for the previous 12 months suitable for publication in <i>WATSNU</i> and contribution to DEC annual report. Provide 1-2 paragraphs summarising total number of new populations located, surveys completed, list major management actions etc	<ul style="list-style-type: none"> • 21 new populations or sub-populations of 11 Threatened flora were located. Of significance were new populations of <i>Daviesia pseudaphylla</i> (CR), new sub-populations of <i>Banksia brownii</i> (CR), <i>Lambertia fairallii</i> (CR) and <i>Boronia clavata</i>; and new populations of <i>Gastrolobium humile</i> (x4), <i>Eucalyptus nutans</i> and <i>Eremophila denticulata</i> ssp <i>denticulata</i>. • 43 new populations of priority flora were located including significant new populations of <i>Allocasuarina</i> sp Boxwood Hill (P1). and two species removed from the Priority flora list due to survey. 	

- 5000m² of fencing (8 x 25x25m enclosures) was completed on Bluff Knoll within the Montane Heath & Thicket TEC . This will be critical for the protection and reproductive success of Critically Endangered *Darwinia collina*, *Leucopogon gnaphalioides*, *Latrobea colophona* and *Andersonia axilliflora*. The benefits of fencing were already evident by Dec 2014 and has enabled heavily grazed plants of species such as *L. colophona* to reproduce and set seed. Detailed monitoring will enable the effect of grazing exclusion on floristics and growth to be documented for the first time. IR motion sensing cameras were used to identify grazers (quokka) for *Leucopogon gnaphalioides* and *Latrobea colophona*.
- Some 55 seed collections were made from approximately 22 Threatened flora species. Significant seed collections were made from poorly collected taxa such as *Boronia clavata* (1st collection), *Banksia goodii* (8 collections) , *Conostylis misera* (1st collection), *Andersonia axilliflora* (1st collections from 2 populations), *Lambertia orbifolia* (1st collection from population 4), *Daviesia pseudaphylla* (1st collections from new population & sub-populations), *Darwinia wittwerorum*, *Calectasia cyanea* (1st collections from 3 new population), as well as collections from seed orchards (*Banksia montana*, *Banksia anatona*, *Daviesia glossosema*, *Daviesia pseudaphylla*, *Lambertia fairallii*).
- Three translocations were implemented – new translocations for *Grevillea maxwellii* and *Daviesia ovata* and an experimental translocation for *Androcalva perlaria* investigating site differences.
- A study was completed investigating the effects of long-term phosphite application on the health of *Banksia anatona* habitat. There were no adverse impacts of phosphite on plant health and community composition, phosphite sprayed infested quadrats had better cover and structure and greater abundance of members of the Ericaceae than non-sprayed infested sites.
- Paper published in Austral Ecology on the Montane Heath and Thicket TEC: *Barrett S & Yates CJ (2014) Risks to a mountain summit ecosystem with endemic biota in southwestern Australia, Austral Ecol.*

List of recovery actions coordinated by Recovery Team

Detail under the headings below the recovery actions undertaken during the reporting period. Provide separate detail for each species/community against each action. For species/community-specific recovery teams, the generic activity types below can be replaced by the specific recovery actions from the recovery plan where appropriate.

Monitoring and survey of existing and new populations/ occurrences, targeted surveys, critical habitat mapped etc.

Threatened flora:

21 new populations and/or sub-populations were located for 11 taxa: *Daviesia pseudaphylla* CR (1 new, 2 sub-pops); *Daviesia ovata*, *Banksia brownii* and *Lambertia fairallii* CR (1 new sub- pop each), *Drakaea confluens* CR (1 new), *Gastrolobium humile* EN (4 new), *Sphenotoma drummondii* EN (2 new), *Boronia clavata* (En) (5 sub-pops), *Banksia pseudoplumosa*, *Daviesia obovata* EN (1 new), *Eucalyptus nutans* VU (1 new).

Priority flora: new populations were located for P1s x 5, P2xs x 18, P3s x13 and P4 x 7 taxa. Significant new populations of *Allocasuarina* sp Boxwood Hill (P1), previously only known from one population, were located on private property.

Quadrat and demographic monitoring (plant growth & reproduction) of

	<p>selected Critically Endangered , Endangered and Vulnerable flora was undertaken to monitor survival and health of species sprayed with phosphite, the effectiveness of grazing control measures and the health of species threatened by other diseases (e.g., canker) and drought.</p> <p>These species included <i>Banksia montana</i>, <i>Banksia anaton</i>, <i>Persoonia micranthera</i>, <i>Darwinia collina</i>, <i>Lambertia orbifolia</i>, <i>Daviesia pseudaphylla</i>, <i>D. glossosema</i>, <i>Calectasia cyanea</i>, <i>Acacia awestoniana</i>, <i>Daviesia ovata</i>, <i>Adenanthos ellipticus</i>, <i>Kunzea similis</i>, <i>Verticordia pityhrops</i>.</p> <p>16 quadrats were established within and without a long-term (1998+) phosphite target for <i>Banksia anaton</i> at Ellen Track, south of Bluff Knoll. Within quadrats, floristics and community structure were recorded as well as cover and abundance of dieback susceptible and potentially phosphite sensitive species. The study showed no negative impact of phosphite on plant health and community composition, phosphite sprayed infested quadrats had better cover and structure and greater abundance of members of the Ericaceae than non-sprayed infested sites.</p> <p>A similar study was completed by UWA students in <i>Andersonia pinaster</i> habitat Boulder Hill, data to be analysed.</p> <p>Infra-red motion sensing cameras were used to investigate pollinators of <i>Banksia montana</i> – with honey possum identified as frequent visitors.</p> <p>Approximately 135 populations or sub-populations of Threatened flora were monitored (including some repeat visits) over 170 monitoring/ survey visits.</p> <p>TECs: Montane Heath & Thicket TEC: see under “Threat amelioration”. Species monitored that occur in this TEC include <i>Banksia montana</i>, <i>Leucopogon gnaphalioides</i>, <i>Latrobea colophona</i>, <i>Andersonia axilliflora</i>, <i>Persoonia micranthera</i>, <i>Darwinia collina</i>.</p>
<p>Threat amelioration e.g. weed control/mapping, fencing/ repairs, fire management disease management, feral/ introduced animal control, installation of roadside markers</p>	<p>Phytophthora dieback Aerial phosphite was applied to 12 threatened flora including 7 CR taxa and 2 PECs (Montane Mallee Thicket / <i>Banksia coccinea</i> shrubland / <i>E. staeri</i> Sheoak woodland) in 24 targets in the Stirling Range NP and Albany coastal sites, 203 ha in total.</p> <p><i>Lambertia orbifolia</i> habitat (jarrah) was trunk injected with phosphite by TAFE volunteers to maintain canopy cover at the site and thereby protect <i>L. orbifolia</i>. This was a repeat of trunk injection conducted in 2008.</p> <p>Herbivory 5000m² fencing (8 x 25x25m enclosures) were completed on Bluff Knoll in the Stirling Range to protect <i>Darwinia collina</i>, <i>Leucopogon gnaphalioides</i>, <i>Latrobea obovata</i> and <i>Andersonia axilliflora</i> within the Montane Heath & Thicket TEC. On-going grazing has prevented these species from flowering and setting seed. 1x1 m quadrats (floristics and structure) were established within and without fenced areas and individual CR taxa tagged and measured to monitor the effect of fencing. By the end of the year the benefits of fencing were evident in the growth</p>

	<p>and reproduction of <i>Leucopogon gnaphalioides</i> and <i>Latrobea colophona</i>.</p> <p>Infra-red motion sensing cameras were used to identify quokka as the herbivore responsible for grazing impacts on <i>Leucopogon gnaphalioides</i> and <i>Latrobea obovata</i>.</p> <p>Rabbit baiting was implemented over 25 ha to protect <i>Darwinia collina</i>, <i>Leucopogon gnaphalioides</i>, <i>Latrobea obovata</i>, <i>Persoonia micranthera</i>, <i>Banksia montana</i> and <i>Andersonia axilliflora</i> within the Montane Heath & Thicket TEC.</p> <p><i>Acacia awestoniana</i> CR - upgrade of small scale fencing to exclude herbivores.</p> <p>Infra-red motion sensing cameras were used to identify Brush tail possum as the herbivore responsible for grazing impacts, the possum was seen to repeatedly target small juvenile plants.</p> <p><i>Banksia anatona</i>, CR SRNP – ongoing fencing of individual plants to exclude quokka / rabbit, fenced plants show good recovery.</p> <p><i>Calectasia cyanea</i> CR: monitoring of fencing of individuals plants and groups of plants to exclude kangaroo; good recovery is evident and increased flowering.</p> <p><i>Daviesia ovata</i> CR: upgrade of fencing to exclude herbivores, monitoring shows good recovery of fenced plants.</p> <p>Weeds</p> <p>38 ha of weed control for African Boxthorn were completed to protect <i>Eremophila denticulata</i> ssp <i>denticulata</i> along the Phillips River, Ravensthorpe.</p> <p>31.8 ha of weed control for <i>*Acacia longifolia</i> was completed on private property to protect <i>Conostylis misera</i> habitat in adjacent South Stirling Nature Reserve which was burnt in a planned burn in autumn 2014.</p> <p>40.8 ha of weed control for <i>*Acacia longifolia</i> was completed on private property to protect <i>Calectasia cyanea</i> CR habitat in adjacent Torndirrup NP.</p> <p>Fire</p> <p>Prescribed burn in long unburnt habitat of <i>Conostylis misera</i> South Stirling NR.</p> <p>Signage;</p> <p>A sign was installed in Gull Rock NP to deter visitors from digging up/trampling <i>Thelymitra variegata</i>.</p> <p>A sign was installed in Montane heath & Thicket TEC to inform the public re research & fencing to protect threatened flora and to deter visitors from trampling vegetation.</p>
<p>Conservation and research e.g. fire research, translocation, ex-situ conservation, revegetation/rehabilitation etc.</p>	<p>Seed collection:</p> <p>Some 55 seed collections were made from approximately 22 Threatened flora species. Significant collections were made from <i>Boronia clavata</i> (1st collection), <i>Andersonia axilliflora</i> (4 collections – 2 ‘first’ collections) eight <i>Banksia goodii</i> populations (previously poorly collected), <i>Conostylis misera</i> (1st collection) <i>Lambertia orbifolia</i> (1st collection from population 4) <i>Daviesia pseudaphylla</i> (1st collections from new population & sub-population), <i>Darwinia wittwerorum</i> (4 populations), <i>Calectasia cyanea</i> (from 3 new populations, seed trap collections and hand collections</p>

	<p>compared), collections from seed orchards (<i>B. montana</i>, <i>B. anatona</i>, <i>D. glossosema</i>, <i>D. pseudaphylla</i>, <i>L. fairallii</i>).</p> <p>Several of these species are components of the in the Montane Heath & Thicket TEC or Montane Mallee Thicket TEC.</p> <p>Genetic material: Material was collected from Stirling mountain populations of <i>Daviesia obovata</i> to compare the genetics with those of outlying populations on Mid-Mt Barren & Thumb Peak (FRNP).</p> <p>Disturbance trial: Top-soil disturbance was implemented on a population of CR <i>Daviesia pseudaphylla</i> and <i>D. glossosema</i> on and adjacent to and old track in an attempt to stimulate recruitment.</p> <p>Translocations New translocations were implemented for CR <i>Grevillea maxwellii</i> (introduction) and <i>Daviesia ovata</i> (re-stocking).</p> <p>A new translocation was implemented (BGPA) for <i>Androcalva perlaria</i> to compare the survival of seedlings and seeding in an existing translocation site, where growth has been poor, with re-stocking of an existing population, data loggers were used to investigate & compare soil moisture and other environmental factors.</p>
<p>Liaison, education/provision of advice e.g. promotional material inc newspaper/ magazine articles, liaison with land managers/ owners, input to impact assessment, development of specific management plans, volunteers assisting with surveys/ monitoring etc.</p>	<p>Paper published in Austral Ecology on Montane Heath and Thicket TEC: <i>Barrett S & Yates CJ (2014) Risks to a mountain summit ecosystem with endemic biota in southwestern Australia, Austral Ecol.</i></p> <p>Case study of Montane Heath and Thicket TEC in CSIRO book "Biodiversity and Environmental Change": <i>Keith D., Lindenmayer D., Lowe A. et al. (2014) Heathlands. In: Biodiversity and Environmental Change: Monitoring, Challenges and Direction (eds D. Lindemayer, E. Burns, N. Thurgate & A. Lowe) pp. 213–81. CSIRO Publishing, Australia.</i></p> <p>Landscape article on seed collection of Threatened Flora in Stirling Range: <i>Cochrane A & Barrett S (2014) Celebrating 21 years of insuring the Stirling Range Flora. Vol 30.</i></p> <p>Volunteers assisted with survey, monitoring and fencing.</p> <p>Liaison with Mining Operations/ Proposal – Ravensthorpe Nickel, Southdowns</p> <p>Input to land-use planning issues in Albany District in relation to PECs, threatened & Priority flora.</p> <p>Input to State NRM Project Dieback re Priority Protection Areas – Stirling Range and Millbrook.</p> <p>Liaison with landowners in relation to populations of <i>Acacia rhamphophylla</i>, <i>Darwinia meeboldii</i>, <i>Gastrolobium humile</i>, <i>Ricinocarpos trichophorus Allocasuarina</i> sp Boxwood Hills.</p>
<p>Land use/tenure changes e.g. covenants, acquisitions, changes in land use or listed purpose etc.</p>	

<p>Conservation status reviews for taxa/TECs e.g. nominations for additions, deletions or change in status to state threatened or priority lists; changes to EPBC list</p>	<p>Two Priority species were recommended for removal from priority list based on survey (<i>Grevillea tetragonoloba</i> P4, <i>Hypocalymma speciosum</i> P3); six species were recommended for downgrading to P4: <i>Eucalyptus vesiculosa</i>, <i>Calothamnus microcarpus</i>, <i>Hypocalymma elongatum</i>, <i>Acacia imparilis</i>, <i>Banksia densa</i> var <i>parva</i>, <i>B. senecifolia</i>. One species was proposed for addition as P2: <i>Hibbertia selkii</i>, a Stirling Range endemic.</p> <p><i>Caladenia granitora</i>, <i>Leucopogon</i> sp Ongerup were added to Threatened flora list. <i>B. verticillata</i> upgraded to CR.</p>
<p>Recovery plans e.g. recovery plans/ IRPs drafted, approved, reviewed or updated</p>	<p>The implementation of IRPs for <i>Banksia montana</i>, <i>Caladenia bryceana</i> ssp <i>bryceana</i>, <i>Calectasia cyanea</i>, <i>Chordifex abortivus</i> were reviewed.</p>
<p>Other actions completed</p>	<p>.</p>