Department of Environment and Conservation
Our environment, our future

RECOVERY TEAM ANNUAL REPORT

THREATENED SPECIES AND/OR COMMUNITIES RECOVERY TEAM

PROGRAM INFORMATION	
Recovery Team	Swan Region Threatened Flora and Communities Recovery Team
Reporting Period	**Calendar year 2010**

Dates meetings were held	No recovery team meetings were held during the period of this annual report due to a change of employment for some members including the Recovery Team chair. The Team has been reformed with an initial meeting held in May 2011, which focussed on the personnel and procedures required to operate the team again for the remainder of the year. The membership of the team will be determined at the first meeting in July 2011.
One to two paragraph summary of achievements	**Swan Coastal District** Full surveys were undertaken of 88 populations (inclusive of sub-populations) for 15 taxa of Declared Rare Flora (DRF) and one species of Priority conservation status (listed below). Results of the surveys so far have shown a significant increase in the number of plants within populations for three of the species *Drakaea elastica* (>185%), *Eremophila glabra* subsp. *chlorella* (1,480%) and Synaphea spp. (ranging from 68% to 230%). New populations were found for four species of DRF, *Banksia mimica*, *Lepidosperma rostratum*, *Drakaea elastica, Synaphea* sp. Fairbridge Farm and *Tetraria australiensis.* Research plots were established and monitored, and transects were also monitored, for ongoing collection of data for either floristic analysis, condition assessment or to study the impacts of operational activities within reserves where a number of Threatened Ecological Communities (TECs) are located. Exclusion cages were placed over plants within populations of *Drakaea elastica* and *Macarthuria keigheryi* to protect them from grazing. Mapping for *Phytophthora* spp. and invasive weeds was undertaken within a number of reserves to benefit six species of DRF and four occurrences of TECs as well as weed control and fence installations and repairs. Articles on DRF and TECs were written and published in WATSNU and Bushland News and information brochures on two TECs were printed and disseminated to the public through letter drops or accompanied with rates notices. Liaison is ongoing with Friends group representatives, volunteers, nature conservation personnel across districts, landholders and other agencies to provide advice on conservation of DRF and TECs. **Perth Hills District** In 2010, at total of 23 populations and 11 sub populations of 16 taxa of Declared Rare Flora (DRF) and 20 populations of 10 priority listed taxa were monitored in the Perth Hills District. This is inclusive of pre and/or post burn monitoring that was completed for 5 taxa of declared rare and priority flora to provide data on fire response. Extensive survey work was also completed for a number of taxa. This has resulted in the discovery of 4 new populations of DRF and 11 new populations of priority flora. The largest of these new populations were located by DEC volunteers, Fred and Jean Hort, who found a population of *Verticordia fimbrilepis subspecies fimbrilepis* (DRF) with over 5000 plants and 4 new populations of *Acacia gemina* (P2) containing a total of over 13 000 plants. Diplolaena andrewsii was declared rare in 2010. It is only known from 2 populations and weeds are a major threat at all known populations. As a result, DEC's Urban Nature Group received funding for a project, completed in January 2011, to gather

	population information, assess the weed threats and develop management recommendations and actions to abate these threats. As part of this project *Diplolaena andrewsii* individuals at all known populations were mapped, a fire history map was compiled, priority weeds were identified and mapped and a weed management plan was completed which includes maps, information and recommendations. This plan will be implemented in 2011. Weed management plans were compiled for 2 nature reserves containing TEC's and DRF and weed control was completed at 2 TEC occurrences. At Talbot Road Nature Reserve which contains SCP20c *"Shrublands and woodlands of the eastern side of the Swan Coastal Plain."* DEC worked closely with a local community group to arrange the installation of interpretive signage which details the conservation values of the area.

SWAN COASTAL DISTRICT.

RECOVERY ACTIONS COMPLETED TO BENEFIT DECLARED RARE FLORA

Full surveys were undertaken of 88 populations (inclusive of sub-populations) for 15 taxa of Declared Rare Flora (DRF) and one species of Priority conservation status (listed below). Results of the surveys so far have shown a significant increase in the number of plants within populations for three of the species.

- *Banksia mimica*
- *Caladenia huegelii*
- *Chamelaucium lullfitzii*
- *Darwinia foetida*
- *Diuris micrantha*
- *Diuris purdiei*
- *Drakaea elastica* (Increased plant numbers overall by over 185%)
- *Eremophila glabra* subsp. *chlorella* (post-burn-unofficial trial; resulted in high numbers of germinants to significantly increase population numbers by 1,480%)
- *Lepidosperma rostratum*
- *Macarthuria keigheryi*
- *Synaphea* sp. Fairbridge Farm (Increased plant numbers overall by over 68%)
- *Synaphea* sp. Pinjarra (Increased plant numbers overall by over 167%)
- *Synaphea stenoloba* (Increased plant numbers within the Swan Coastal District by over 31% and within the Perth Hills District by over 230%)
- *Tetraria australiensis*
- *Synaphea* sp. Serpentine - Priority 3 species.

Although plant numbers increased greatly for all of the Synaphea species monitored, there were a significant number of plants observed to be in poor condition or recorded as dead due to infestation by Mealy bugs.

New populations were found for four of the above-listed species (*Banksia mimica*, *Lepidosperma rostratum*, *Drakaea elastica, Synaphea* sp. Fairbridge Farm and *Tetraria australiensis*). DRF markers were installed, repositioned or replaced for populations of *Chamelaucium lullfitzii* and all populations monitored of *Synaphea* spp. All plants where possible, within the populations monitored were recorded using a Digital GPS for accuracy of re-location and mapping.

Two species of DRF (*Banksia mimica* and *Drakaea elastica*) were assessed against the IUCN criteria, which resulted in no change of conservation status at this time.

Monitoring for ongoing assessment into the impacts of fire was conducted for three species of DRF, *Andersonia gracilis, Caladenia huegelii* and *Macarthuria keigheryi*. Results of the trials will be reported on in the 2011 annual summary. Mapping of *Phytophthora* spp. within reserves to enable appropriate management for the benefit of DRF was undertaken and are listed below;

- *Caladenia huegelii* in Fraser Rd bushland,
- *Andersonia gracilis, Calytrix breviseta* subsp*. breviseta, Lepidosperma rostratum* and several Priority flora species in Brixton St. Wetlands and
- *Tetraria australiensis* and *Synaphea stenoloba* in Lambkin NR.

Exclusion cages designed to protect DRF from grazing by feral and native animals were placed over plants of *Diuris micrantha* (population1a)*, Drakaea elastica* (population 22) and *Macarthuria keigheryi* (population 3a & 3b).

Seed was collected during the survey of DRF species *Tetraria australiensis,* by personnel from the Threatened Flora Seed Centre.

Articles on the installation of exclusion cages and the impacts of Mealy bug infestation on Synaphea spp. were submitted for inclusion into WATSNU. Letters of support for grants to enable recovery actions on non-DEC estate for DRF and Threatened Ecological Communities (TECs) were also written.

RECOVERY ACTIONS COMPLETED TO BENEFIT THREATENED ECOLOGICAL COMMUNITIES

The establishment and monitoring of plots to assess vegetation condition or obtain data for floristic analysis was undertaken for TEC NTHIRON; Perth to Gingin Ironstone Association in Timaru Nature Reserve and for TEC SCP20a; *Banksia attenuata* woodland over species rich dense shrublands in Reid Highway bushland. Transects established within Moore River National Park were also monitored for ongoing assessment into the impacts of bunding to control the flow of water within the boundary of the TEC SCP07; Herb rich saline shrublands in clay pans.

Information brochures were published for TECs SCP19; Sedgelands in Holocene dune swales of the southern Swan Coastal Plain and Richmond – microbial; Stromatolite-like microbialite community of coastal freshwater lakes. These were either sent to the relevant Shire to disseminate with rates notices or for delivery to landholders in the vicinity of the TEC. A Bushland news article was also written titled “Blackberry control at Bullsbrook Mound Springs”.

Weed mapping was undertaken to benefit the TEC SCP3a; *Eucalyptus calophylla – Kingia australis* woodlands on heavy soils, Swan Coastal Plain in Lambert Lane bushland and Abernethy Rd bushland. Weed control was also conducted to benefit the TEC SCP3c; *Eucalyptus calophylla – Xanthorrhoea preissii* woodlands and shrublands, Swan Coastal Plain, within to Ellen Brook NR to suppress Tambookie grass. Blackberry control and the removal of biomass was also carried out within Neaves Rd NR to benefit the TEC Mound Springs SCP; Communities of Tumulus Springs (Organic Mound Springs, Swan Coastal Plain).

Fence installation and repairs were carried out for a number of reserves to benefit the TECs occurring within them. The specific TEC, reserve and the work undertaken are listed below:

- TEC SCP02; Southern wet shrublands, Swan Coastal Plain. Fence repair at Dundas NR.
- TEC SCP3a; *Eucalyptus calophylla – Kingia australis* woodlands on heavy soils. Cable Fence installed and fence repair at Brixton St Wetlands.
- TEC SCP3c; *Eucalyptus calophylla – Xanthorrhoea preissii* woodlands and shrublands, Swan Coastal Plain. Fence repair at Ellen Brook NR.
- TEC SCP07; Herb rich saline shrublands in clay pans. Cable Fence installed and fence repair at Brixton St Wetlands.
- TEC SCP10a; Shrublands on dry clay flats. Cable Fence installed and fence repair at Brixton St Wetlands.
- TEC SCP20a; *Banksia attenuata* woodland over species rich dense shrublands. Fence repair at Dundas NR, fence construction at Errina Rd Reserve and fence construction at Hawkevale Bushland.
- TEC SCP20b; Banksia attenuata and/or Eucalyptus marginata woodlands of the eastern side of the Swan Coastal Plain. Fence repair at Cardup NR.
- TEC Mound Springs SCP; Communities of Tumulus Springs (Organic Mound Springs, Swan Coastal Plain). Fence repair at Neaves NR and installation of new fence at Muchea NR.
- MUCHEA LIMESTONE; Shrublands and woodlands on Muchea Limestone. Installation of new fence at Muchea NR.
- TEC NTHIRON; Perth to Gingin Ironstone Association. Installation of new boundary fence at Timaru NR.

Mapping of *Phytophthora* spp. within reserves to enable appropriate management for the benefit of the following TECs was undertaken and are listed below;

- TEC SCP3a; *Eucalyptus calophylla – Kingia australis* woodlands on heavy soils, Swan Coastal Plain in Lambert Lane bushland, Abernethy Rd bushland and Brixton St. wetlands.
- TEC SCP07; Herb rich saline shrublands in clay pans in Brixton St Wetlands.
- TEC SCP10a; Shrublands on dry clay flats in Brixton St Wetlands.
- MUCHEA LIMESTONE; Shrublands and woodlands on Muchea Limestone in Muchea NR.

Repairs to a plaque providing information on the vegetation within Brixton St. wetlands were undertaken. Three TECs occur at this location; TEC SCP3a; *Eucalyptus calophylla – Kingia australis* woodlands on heavy soils,

Swan Coastal Plain, TEC SCP07; Herb rich saline shrublands in clay pans and TEC SCP10a; Shrublands on dry clay flats.

PERTH HILLS DISTRICT

MONITORING AND SURVEYING

** Works Completed by DEC staff in conjunction with DEC Volunteers Fred and Jean Hort*
[#] Works completed by DEC Volunteers Fred and Jean Hort

DRF Monitored

- *Acacia aphylla* populations -8 populations and 4 sub populations)
- *Grevillea flexuosa* - 2 sub populations
- *Tetraria australiensis* - 1 population
- *Chamelaucium lullfitzii* - 2 sub populations
- *Pultenaea pauciflora* - 2 populations
- *Verticordia fimbrilepis subsp fimbrilepis* - 1 population
- *Tribonanthes purpurea* -1 population*
- *Acacia brachypoda* - 1 population[#]
- *Stylidium semaphorum** - 1 population
- *Banksia aurantia*[#] 1 population
- *Diplolaena andrewsii* - 2 populations (monitored as part of the Urban Nature Project)
- *Grevillea althoferorum subsp. fragilis* - 1 population

Priority flora monitored

- Priority 1 – 3 populations*
- Priority 2 - 1 population [#]
- Priority 3 – 4 populations*
- Priority 4 – 1 population[#]

Targeted pre and post burn monitoring completed of the following species

DRF

- *Acacia aphylla* - 2 populations and 2 sub populations)
- *Acacia anomala* - 3 sub populations
- *Anthocercis gracilis* – 1 population*
- *Asterolasia nivea* – 1 population
- *Caladenia dorrienii* – 1 population
- *Verticordia fimbrilepis subsp fimbrilepis* – 1 population *

Priority flora monitored

- Priority 1 - 6 populations*
- Priority 2 - 2 populations*
- Priority 3 - 2 populations*
- Priority 4 - 1 population*

Survey work was completed resulting in new populations of the following species:

DRF

- *Acacia aphylla*
- *Grevillea flexuosa*
- *Tetraria australis*
- *Verticordia fimbrilepis* subsp *fimbrilepis* [#]

Priority Flora

- *Thysanotus formosus* (P1) 1 population [#]
- *Petrophile filifolia* subsp *laxa* (P2) 1 population [#]
- *Acacia gemina* (P2) 4 populations 1 population [#]
- *Allocasuarina grevilleoides* (P3) 2 populations [#]
- *Grevillea* sp Toodyay West (P2) 1 population [#]
- *Leucopogon* sp Bindoon (P2) 1 population [#]
- *Lasiopetalum bracteatum* (P4) 1 population [#]

Surveys were also completed for *Chamelaucium lullfitzii* (DRF), *Hypocalymma sylvestre* (P1), *Conospermum* aff. *galeatum* (P1)[#] and *Boronia humifusa* (P1)[#] however no new populations were located.

OTHER RECOVERY ACTIONS

Externally Funded Projects
Funding was provided to DEC's Urban Nature through the State NRM grants to map all of the known populations of Diplolaena andrewsii and create a weed management plan for the species.

As part of the project:

- *Diplolaena andrewsii* individuals at all known populations were mapped using Differential GPS
- A fire history map of the area was compiled
- A survey of all weed species (recording presence/absence) within 50 m radius of subpopulations of each of the populations was completed. Priority weeds were then identified and mapped using a Differential GPS
- A weed management plan was completed early 2011 which includes maps, information and recommendations.

Liaison and Education
Liaison with various stakeholders including local government, private landholders and other government departments has occurred throughout the district in 2011

Community liaison and education has also continued to occur at Talbot Nature Reserve, which contains the critically endangered threatened ecological community (TEC) SCP20c " Shrublands and woodlands of the eastern side of the Swan Coastal Plain." DEC continued to work closely with the local friends of group to manage the area. Of note was the installation of interpretive signage which details the conservation values of the area. There are plans to install further signage in 2011.

Plant Pathology Analysis
Cankers were observed on a number of plants at a population of Grevillea flexuosa. A sample of the plant was taken and submitted for analysis. A *Phomopis* species was identified to be the pathogen.

Weed Management
In conjunction with Urban Nature, weed management plans were completed for two nature reserves containing TECs and DRF:

- Bullsbrook Nature Reserve which contains the Threatened Ecological Community,(TEC) SCP07 "Herb rich saline shrublands in clay pans," and DRF *Verticordia plumosa var pleiobotrya* and *Grevillea althoferorum subsp. fragilis*
- Talbot Nature Reserve which contains the critically endangered TEC SCP20c *"Shrublands and woodlands of the eastern side of the Swan Coastal Plain."*

Weed Control

- To reduce the threat to the TEC "Herb rich saline shrublands in clay pans," at Bullsbrook Nature Reserve, the following species were controlled: *Juncus acutus, Moraea flaccida, Tamarix aphylla, Euphorbia terracina, Echium plantagineum, Cucumis myriocarpus.* These weeds were located within and adjacent to the TEC
- *Watsonia* sp were controlled at Meelon Nature Reserve which contains Vulnerable TEC. SCP08 Herb rich shrublands in clay pans.