

# Managing threatened flora species in areas planned for fuel reduction burning

## Background document 1: Project overview, key terms and legislation



A report to the Tasmania Fire Service

2017

## **Cover photograph**

Fuel reduction burn. Photo courtesy of Bernard Plumpton, TFS.

## **Disclaimer**

*Background document 1: Project overview, key terms and legislation* is a descriptive document intended to provide supporting information for the project 'Managing threatened flora species in areas planned for fuel reduction burning.'

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## **Citation**

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## 1. Project background

The Tasmania Fire Service (TFS) engaged the Forest Practices Authority (FPA) to collate information on the potential impact of fuel reduction burning on threatened flora species in Tasmania, and to develop management actions to mitigate negative impacts where required. The project is titled 'Managing threatened flora species in areas planning for fuel reduction burning.'

To deliver the best available information, the FPA formed a project team comprised of FPA and ECOtas ecologists with recognised expertise in field botany. The depth of knowledge and experience in the project team enabled the use of 'expert opinion' in the absence of any written information on a species. The project team was supported by an independent scientific reference group (SRG) comprised of experts in field botany, and a practitioner reference group (PRG) comprised of people working in the area of fuel reduction burns. The role of the SRG was to review the work produced by the project team and provide expert opinion when required. The role of the PRG was to provide technical support to the project team and to review the project outputs.

The project outputs include:

- background document(s) providing supporting information;
- updated and endorsed (by DPIPWE) habitat descriptions and survey notes for all species of threatened flora;
- notes on the sensitivity of threatened flora species to planned fuel reduction burns using the most up to date information from published and unpublished sources and expert opinions; and
- guidelines to assist with reducing the risk to threatened flora species when planning and conducting fuel reduction burns.

The objective of this background document is to provide an overview of the project, background into the planning and potential impact of fuel reduction burning, and define key terms.

This project specifically considers fuel reduction burning planned by the Tasmania Fire Service. However, the outputs may be applicable to other types of planned burns by other agencies.

## 2. Fuel reduction burns – a brief overview

Fuel reduction burning (FRB) is a type of planned burn. A planned burn is the deliberate use of fire under specified conditions for the purpose of fuel management (a fuel reduction burn), ecological management, promoting agriculture green pick, and weed management (Marsden-Smedley 2009). Planning a fuel reduction burn involves a number of steps, including a database check for the presence of special values, site assessment and the development of an operational burn plan.

A planned burn is only conducted in areas that are considered 'treatable'. Treatable areas are those supporting vegetation communities that are considered suitable for planned burns. The suitable vegetation communities include dry eucalypt forest, heathlands, dry scrub and wet scrub, buttongrass moorlands, native grassland and areas requiring weed management (Marsden-Smedley 2009). Fuel reduction burns only occur in some of these treatable vegetation types, depending on the locality within Tasmania and fuel loads present.

The standard objectives for a FRB are to:

- reduce overall fuel hazard over the majority of the planned area;
- reduce bushfire risk and increase the ease and safety of firefighting and defensive strategies in the area; and
- conduct the burn safely.

The objectives determine (mostly) the locality of a FRB. For example, areas that already have a low overall fuel hazard rating are unlikely to be subject to a FRB as it is not required to reduce the fuel hazard.

When planning a FRB, the vegetation type and fuel load are taken into consideration, and guidelines for planned burning in Tasmania are consulted. These guidelines (Marsden-Smedley 2009) include planned burning guidelines for each treatable vegetation type. For example, the planned burning guidelines for dry eucalypt forest provide a recommended fire frequency range of 4 to 10 years, a desirable fire intensity, and a fuel hazard rating system ranging from low to extreme based on a site assessment of surface, near surface and elevated fuels (Marsden-Smedley 2009). Fire frequency in FRB plans will be dictated by the guidelines and the ability to achieve an adequate burn coverage and intensity (Marsden-Smedley 2009). There are many factors that contribute to fire frequency, including time since last fire (fire age), time of year and fuel loads.

Fire behaviour (including fire intensity) is taken into account using fire behaviour prediction systems developed (mostly) for southern Australia. Factors that influence fire behaviour include wind speed, fuel load, fuel moisture and site conditions (e.g. topography). The guidelines in Marsden Smedley (2009) outline parameters for each factor to maximise the chance of achieving the desired fire intensity (to achieve the objectives of the fuel reduction burn). For example, in dry eucalypt forests the wind speed should be less than 30 km per hour, the temperature between 10-25°C and the relative humidity 40-80%.

The planned burning guidelines, along with other onsite factors (including ecological considerations) are incorporated into an operational burn plan. Images of a dry eucalypt forest before and after a fuel reduction burn are shown in Figure 1.



**Figure 1:** Dry eucalypt forest before (A) and after (B) a fuel reduction burn. Photos courtesy of Bernard Plumpton, TFS.

### **3. Managing threatened flora species within fuel reduction burn areas**

An operational burn plan for a FRB outlines the factors that determine where, when and how the planned burn will be conducted. Burn plans do take ecological issues into consideration, and the planner is required to make an assessment of environmental risk, including vegetation type and threatened species. However, it is important to note that the objective of a FRB is not the same as the objective of an ecological burn.

The present project is not aimed at the concept of ‘ecological burning’, which is herein defined as planned burns undertaken with the specific aim of achieving some conservation management outcome for an ecological value (in the present context, this would be threatened flora species). An example of a threatened flora species that may require an ecological burn is *Tetratheca gunnii* (shy susan), a species that is competitively weak and requires understorey opening to persist. While known sites and potential habitat of the species may be included in a FRB area, the ecological requirements of this highly endangered species may need to be considered as part of any such activities. Ecological burns would usually be planned by the agency responsible for the administration of the relevant threatened species legislation (e.g. DPIPW).

The aims of FRB and ecological burning are inextricably linked, however. For example, there may be an imperative to undertake a FRB in sites supporting *Tetratheca gunnii* (e.g. to protect life and

property) but this does not mean that the conservation management requirements of the species cannot be taken into account. Conversely, it would be unusual for a FRB to be conducted at such a site if an ecological burn has recently been undertaken and already effectively reduced the fuel loads. The responses of a threatened species to the fire regime (e.g. intensity, frequency, etc.) varies from a species where FRB and ecological burning are effectively the same (i.e. the threatened flora within an FRB area are not deleteriously affected by a standard FRB regime) to a species where the ecological requirements of the species is not compatible with the FRB regime.

Under the current management system, during the planning stages for a FRB, the planned burn area is assessed for the presence of threatened flora species. This is mainly achieved through a database search of known localities, with on-ground flora surveys rarely conducted when there are no known localities present within the burn area (note: known localities of threatened plant species within the burn area are often ground truthed). Advice is sought from appropriate specialists where known localities may be impacted.

### **3.1 Known localities**

A known locality is problematic to define. In practice, fire planners have used the point locality of a record from a database (usually DPIPWE's *Natural Values Atlas*) to determine if a threatened species is inside or outside a planned burn boundary. The age and the accuracy (precision) of the database record is considered, as is a 'buffer' around the planned burn boundary. However, there are currently no guidelines on how to interpret database records or what is a practical buffer distance to apply to a database search.

#### **3.1.1 Discussion on database record precision**

The term 'known locality' is commonly used in natural resource planning and management in relation to threatened flora sites listed on DPIPWE's *Natural Values Atlas* database. However, defining the intent and practical meaning of a known locality is not as straightforward as it would seem.

The data held in the *Natural Values Atlas* for threatened flora varies markedly in its precision from an accuracy of  $\pm 1$  m (many recent records) to  $\pm 10,000$  m or more (many historical records). The information associated with records also varies markedly, with many records having no supporting information other than perhaps a vague date, collector name and locality (e.g. 1837, R. C. Gunn, Van Diemens Land) to others having extremely detailed information on the location (e.g. "eastern side of sandy track 3 m from sandstone outcrop"), habitat, and population (abundance, extent).

All records can be considered to have a point location surrounded by a 'precision radius' (a radius surrounding the point location defined by the listed precision). Most records are listed as  $\pm 100$  m but while this implies a relatively precise location, this very much depends on the source of the record as 100 m was effectively the 'default setting' for many projects. For example, any of the Kirkpatrick records dating from the 1980s and 1990s are shown as  $\pm 100$  m and often the point location looks reasonable on a map but in reality, many records were placed in the top left hand corner of a 1 x 1 km grid square on a 1: 100,000 or 1: 25,000 Tasmap (so at best, many of these records should be  $\pm 1,000$  m). Similarly, many of the orchid records have a precision of  $\pm 100$  m but the point locations were derived by personal discussions between Hans Wapstra and the original collectors, in an attempt to improve the accuracy of as many locations for various species as

possible. Even some records that clearly coincide with the AGD66 easting/northing grid reference “crosshairs” on a 1:25,000 Tasmap can be indicated as  $\pm 100$  m (these are probably rarely better than  $\pm 1,000$  m). Several of the datasets held in the *Natural Values Atlas* have recognised precision issues but these have not been well documented beyond anecdotal accounts e.g. records from the “dglnd” project code refer to the records analysed in the decoda database for the native grasslands and this project frequently throws up erroneous records, despite continued ‘data cleaning’ within DPIPWE.

Unfortunately, if a point location from the *Natural Values Atlas* falls within a proposed operation area, it is not reasonable to assume that it is precise without reviewing the supporting information. In most cases, this can be undertaken by the planner by examining the basic information associated with a record. This may be listed in the output of the *Natural Values Atlas* or in some cases, the *Natural Values Atlas* may need to be interrogated in greater detail by logging on and querying the record number. In some cases, consulting with a specialist may be possible, or even the original collector, if listed.

In conclusion, a planner needs to treat all known localities with caution, make no assumptions and be prepared to delve deeper into the species record as it may, or may not, be within a proposed operation area.

### **3.1.2 Buffer distance**

Determining an appropriate buffer distance to apply to any database enquiry is also difficult and a number of factors need to be considered, including: differing expert opinion, standard buffers used for planning other land use activities (e.g. 5 km buffer recommended by DPIPWE for ecological assessments for development), lack of past survey effort, and ‘threat’ of the FRB to a species in the area.

The standard 5 km buffer recommended by DPIPWE may seem like the obvious buffer distance to use. However, the practicality of using a 5 km buffer needs consideration. Unlike a well-defined development proposal with a usually relatively small ‘footprint’ (e.g. usually in the order of a few hectares, sometimes 10s of hectares, but rarely 100s to 1,000s of ha), a FRB area can be large. A 5 km buffer on a large FRB area may equate to hundreds or even thousands of additional hectares and numerous threatened flora records. Ecologically, this may be considered a rigorous planning approach. However, the objectives of a FRB (i.e. to reduce fuel loads, reduce bushfire risk, and asset protection) and the relative risk of a FRB to many of the threatened flora species in Tasmania, need to be considered. A FRB is not intended to be an ecological burn, and although ecological values are taken into account, they do not (generally) drive the need for or locality of a FRB. Therefore, during the planning process the consideration and management of threatened flora species within a FRB area (and buffer) needs to be practical and effective. That said, it is recognised that many FRB areas can be relatively small (e.g. 10-100 ha) and a 5 km buffer may not result in a massive area being considered. For the sake of simplicity and only in relation to prescribed burning a practical buffer distance around the FRB area may be 1km.

### **3.2 Legislative and policy requirements**

It is not the role of this background document to outline the requirements for all legislation and policies that may need to be considered in relation to FRB. However, some key legislation is discussed below that has direct or indirect bearing on the management of threatened flora and FRB

activities. Note that the discussion below is not intended as legal advice but is provided for consideration by TFS.

In Tasmania, threatened flora species need to be considered under both the Tasmanian *Threatened Species Protection Act 1995* (TSPA) and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA). Under the TSPA, species may be listed (in increasing order of conservation status) as: rare, vulnerable, endangered and presumed extinct. Under the EPBCA, species may be listed (also in increasing order of conservation status) as vulnerable, endangered, critically endangered and presumed extinct i.e. the EPBCA does not have a corresponding category for the TSPA's rare category and it has an additional category within the TSPA's endangered category.

There is generally very good alignment between the TSPA and the EPBCA such that species that occur in Tasmania listed on the EPBCA are usually also listed on the TSPA. However, many species listed on the TSPA are not listed on the EPBCA because the latter does not have a 'rare' category (although there are some TSPA rare species listed on the EPBCA with a higher status e.g. *Dianella amoena* is listed as rare on the TSPA but as vulnerable on the EPBCA). It is mainly Tasmanian endemic species that are listed on both the EPBCA and the TSPA.

### **3.2.1 Tasmanian Threatened Species Protection Act 1995 (TSPA)**

Under the TSPA (Section 51), "...a person must not knowingly, without a permit...take, keep, trade in or process any specimen of a listed taxon of flora or fauna...". The Act does not define the term 'knowingly' and it is usually taken to mean what could be reasonably known by the person undertaking the action. For example, a private landowner would not be expected to check the *Natural Values Atlas* to "know" if their bush block supported a threatened species prior to undertaking some understorey slashing. However, it would be reasonable to expect a government agency undertaking a deliberate action such as fuel reduction burning to "know" if threatened species are present but such a check may not be reasonably expected for an action such as emergency fire-fighting.

DPIPWE's *Natural Values Atlas* database is usually taken to be the source of "knowing" if a threatened species is present because the information on threatened species is also readily available on The List. However, there may be other sources of reasonable knowledge including commissioned reports (which can contain point location data not transferred to the *Natural Values Atlas*), communications with experts, and personal knowledge. There are "grey areas" in this concept of course: someone merely suggesting that an area may have a threatened species probably does not constitute "knowing" but this would depend on the expertise of that person. In practice, the *Natural Values Atlas* is considered to be the most up-to-date source of records.

The Act does define the term "take", which would include killing or damaging individuals of threatened flora during a FRB. Agreed procedures are in place between DPIPWE (responsible for administering the TSPA and the issuing of permits under Section 51) and the TFS that allow TFS to "knowingly take" threatened flora without the need for the application for permits where management is in accordance with a set of endorsed recommendations.

### 3.2.2. Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA)

Under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* an action will require approval from the minister if the action has, will have, or is likely to have, a significant impact on a matter of national environmental significance.

Matters of national environmental significance considered under the EPBCA include:

- listed threatened species and communities;
- listed migratory species;
- Ramsar wetlands of international importance;
- Commonwealth marine environment;
- world heritage properties;
- national heritage places;
- the Great Barrier Reef Marine Park;
- nuclear actions; and
- a water resource, in relation to coal seam gas development and large coal mining development.

The Commonwealth Department of the Environment provides a policy statement titled *Matters of National Environmental Significance: Significant Impact Guidelines 1.1* (CofA 2013, herein the *Guidelines*), which provides overarching guidance on determining whether an action is likely to have a significant impact on a matter protected under the EPBCA.

The *Guidelines* define a **significant impact** as:

*“...an impact which is important, notable, or of consequence, having regard to its context or intensity. Whether or not an action is likely to have a significant impact depends upon the sensitivity, value, and quality of the environment which is impacted, and upon the intensity, duration, magnitude and geographic extent of the impacts”*

and note that:

*“...all of these factors [need to be considered] when determining whether an action is likely to have a significant impact on matters of national environmental significance”.*

The *Guidelines* provide advice on when a significant impact may be **likely**:

*“To be ‘likely’, it is not necessary for a significant impact to have a greater than 50% chance of happening; it is sufficient if a significant impact on the environment is a real or not remote chance or possibility.*

*If there is scientific uncertainty about the impacts of your action and potential impacts are serious or irreversible, the precautionary principle is applicable. Accordingly, a lack of scientific certainty about the potential impacts of an action will not itself justify a decision that the action is not likely to have a significant impact on the environment”.*

The following steps and matters are recommended under the *Guidelines* to determine whether a referral under the EPBCA is required.

1. *Are there any matters of national environmental significance located in the area of the proposed action (noting that ‘the area of the proposed action’ is broader than the immediate location where the action is undertaken; consider also whether there are*

*any matters of national environmental significance adjacent to or downstream from the immediate location that may potentially be impacted)?*

2. *Considering the proposed action at its broadest scope (that is, considering all stages and components of the action, and all related activities and infrastructure), is there potential for impacts, including indirect impacts, on matters of national environmental significance?*
3. *Are there any proposed measures to avoid or reduce impacts on matters of national environmental significance (and if so, is the effectiveness of these measures certain enough to reduce the level of impact below the 'significant impact' threshold)?*

The *Guidelines* also state:

*However you should not conclude that a significant impact is not likely to occur because of management or mitigation measures unless the effectiveness of those measures is well-established (for example through demonstrated application, studies or surveys) and there is a high degree of certainty about the avoidance of impacts or the extent to which impacts will be reduced.*

4. *Are any impacts of the proposed action on matters of national environmental significance likely to be significant impacts (important, notable, or of consequence, having regard to their context or intensity)?*

The *Guidelines* provide a set of Significant Impact Criteria, which are “intended to assist...in determining whether the impacts of [the] proposed action on any matter of national environmental significance are likely to be significant impacts”. It is noted that the criteria are “intended to provide general guidance on the types of actions that will require approval and the types of actions that will not require approval...[and]...not intended to be exhaustive or definitive”.

Under the *Guidelines*, an action is likely to have a significant impact if there is a real chance or possibility that it will: (a) lead to a long-term decrease in the size of a population; (b) reduce the area of occupancy of the species; (c) fragment an existing population into two or more populations; (d) disrupt the breeding cycle of a population; (e) modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline; (f) result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat; (g) introduce disease that may cause the species to decline; or (h) interfere with the recovery of the species.

Any FRB activities that are anticipated to have a significant impact on EPBCA-listed flora will need to be carefully considered against the relevant criteria of the *Significant Impact Guidelines* and appropriate advice sought from State and/or Commonwealth agencies on the requirements for formal referral under the EPBCA. The documents prepared as part of the present project clearly identify which species are listed on the EPBCA (but planners need to ensure the current status of all species is considered during the planning process). They also identify those species where special consideration of the *Significant Impact Guidelines* may need to be made – this is for a small suite of species only and usually those that are subject to formal recovery plans (e.g. *Tetratheca gunnii*, threatened orchids), almost all of which have highly restricted distributions, are more likely to be subject to “ecological burning” (rather than planned FRB) coordinated by DPIPW in conjunction with the relevant Commonwealth agency, and are unlikely to be routinely and frequently encountered for most FRB operations.

### 3.2.3 Tasmanian *Forest Practices Act 1995* and associated Regulations

The *Forest Practices Act 1985* defines the following terms that may be relevant to fuel reduction burning:

**clearing of trees** means the removal of trees by–

- (a) clearing, cutting, pushing or otherwise removing; or
- (b) destroying the trees in any way;

**trees** means–

- (a) any woody plants with a height or potential height of 5 metres or more, whether or not living, dead, standing or fallen, that are–
  - (i) native to Tasmania; or
  - (ii) introduced into Tasmania and used for the processing or harvesting of timber; and
- (b) tree ferns;

On this basis, fuel reduction burning could be considered to be “clearing”.

The *Forest Practices Regulations 2007* define the following terms that may be relevant to fuel reduction burning:

**fire management work** means burning off vegetation and constructing firebreaks and access tracks where–

- (a) the sole purpose of the work is to reduce fire hazards or control wildfires; and
- (b) trees affected by the work are not harvested or cleared for any other purpose; and
- (c) reasonable precautions are taken to avoid harming natural and cultural forest values, including forest cover and regeneration;

The Regulations state:

#### 4. Circumstances in which forest practices plan, &c., not required

For the purpose of section 17(6) of the Act, the following circumstances are prescribed:

- (h) the clearing of trees, or the clearance and conversion of a threatened native vegetation community, in the course of fire management work carried out under a fire management program of a kind that the Authority has approved in writing for the purposes of this paragraph;

In effect, provided that the Authority has approved in writing the manner in which fuel reduction burning will be carried out, a Forest Practices Plan will not be required. It is recommended that TFS seek formal advice in writing from the Forest Practices Authority (i.e. the Board of the Authority) acknowledging (a) the agreed procedures between TFS and DPIPW for the management of threatened flora, and (b) the system of planning and implementing fuel reduction burning as meeting the intent of 4.(h) of the Regulations.

## 4. References

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