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DESERT FIRE: A DESERT KNOWLEDGE CRC PROJECT

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Fire is a feature of the Australian landscape, within the vast desert regions, the northern tropical savannas and the southern coastal forests and heathlands. Its occurrence and impact within the desert regions is as variable as the region itself. Fire can be an annual feature of the northern desert regions fringing the tropical savannas, less regular in central Australia but closely linked to the variable rainfall, or completely absent in intensively managed grazing lands in the eastern arid zone. Attitudes vary towards fire, both in its value as a management tool and the threats and impacts of wildfires to infrastructure, productivity and biodiversity. These attitudes seem to vary locally and regionally, between and within community groups.

During the three year period 2000-2002, fires were common in the central and northern regions of Australia's desert lands, following a period of above-average rainfall that created exceptional grass growth and fuel production. This raised the awareness of fire but has also led to conflicts among sectors of the rural community.

The Desert Knowledge CRC is attempting to address some of the key issues in managing fire in desert Australia through an initiative called *Desert Fire*. Desert Fire is a collaborative project involving key partners of the CRC (including the NT Government – Bushfire Council, Parks and Wildlife, and Biodiversity Assessment; Central Land Council; Charles Darwin University; and Adelaide University) and key stakeholder groups. Desert Fire is made up of eight sub-projects, linked together to meet a common goal.

The goal of Desert Fire is to “adapt and maintain appropriate fire regimes and their management based on robust research, planning, review and communication to support the diverse users and managers of desert lands to achieve a balance of their ecological, social and economic priorities”.

There are a number of key issues to be addressed by the Desert Fire project. These include:

- quantification of the nature and extent of fires across desert Australia;
- evaluation of the factors which promote fires in desert Australia;
- identification of regions within desert Australia where fire management research is a priority;
- assessment of fire management issues in the Tanami Desert;
- examination of the impact of fires on biodiversity in desert landscapes;
- development of best practices for managing fire in National Parks, and
- assessment of the economic impact of fires in desert landscapes.

The following section provides a brief overview of each of the key issues that Desert Fire will address. In order to measure the nature and extent of fires it is necessary to build and maintain a good fire history database; recording where and when fires have occurred. In collaboration with the Tropical Savannas CRC, we have a broad scale continental fire history. It provides an initial overview of areas burnt during the seven-year period from 1997 to 2003. However its resolution and accuracy is restricted. It misses many small fires, and only identifies areas burnt, not the number of fires. Our project will help refine the continental fire history using hotspot detection of active fires. This will help identify many small fires that were not mapped and build a more complete national perspective of fire.

In combination with other information such as rainfall, land use and vegetation, an analysis of the fire database will evaluate the factors driving fires in desert Australia. The differences across desert Australia will improve our understanding of the system, our capability to predict wildfire risk (when and where fires may occur) and identify opportunities when fire can be used as a management tool.

The analysis will also help to select regional areas for more intensive investigation. Without pre-empting the analysis, our aim is to identify areas within each state and territory and to address issues that are both common and unique to each region. This will cover areas with differing combinations of land use and tenure, high fire frequency and the absence of fire. Based on our existing knowledge and experience we have selected the Tanami region of the NT as our first study area.

Within the Tanami there is a mix of land uses and economic activities, vegetation communities and fauna populations. It receives a relatively consistent annual rainfall that is linked to both regular fire opportunities and fire risk. We will discuss fire with people in the Tanami to involve the community in the project, to improve our understanding of the role of fire and the diversity of views and ambitions about fire. We recognise that fire can be a contentious issue and we hope that improving the dialogue about fire will help to resolve some conflicts associated with fire. To help us with this aspect we will compile a detailed fire history of the region to ensure a consistent interpretation of past events. The pattern of fire across Australia has changed since European settlement but the impact of this change is poorly understood and difficult to measure. However it has been identified as a contributing factor to many ecosystem changes, including the decline or extinction of medium-sized mammals within central Australia. We expect many other changes are also occurring. We will use our record of fires in the past three years, in combination with fire records over the past 30 years to study the impacts of fire on the biodiversity of the region. This will involve talking to people about plants and animals, and also doing flora and fauna surveys in the region to collect and count plants, insects, birds and small mammals.

National parks are areas where fire is a core part of land management practices and provide opportunities to study the differing effects of fire on plants and animals. Our work will include identifying species that are negatively affected by fire and developing guidelines for appropriate fire management of different vegetation types. It will also study the use of fire for conservation outcomes in ways that are efficient and compatible with neighbouring land uses.

We also want to improve our understanding of the economic impact of fires. It will not be possible to collect detailed information on all fires over the past three years, but we hope that a scattering of information from land managers across central Australia will help us to compile a more complete picture. We know that fires have damaged tourist infrastructure and affected tourist experiences, caused damage to pastoral infrastructure, cattle and pasture, affected mining operations and threatened Aboriginal communities and their natural resources. But we are also aware that some fires have had positive benefits to the management of woody weeds, improving pasture and providing employment opportunities in Aboriginal communities.

Our challenge is to engage community support for this work, demonstrate considerable progress and results during the first two year phase of the DK CRC, identify future needs and opportunities, and formulate further projects for the second phase of the CRC including collaboration with the Bushfire CRC. The ultimate goal of the Desert Fire project is to “promote the co-existence of fire, people and biodiversity in the desert landscape of Australia”.