

CLIMATE A FACTOR IN DIEBACK OUTBREAKS

By the Director of Planning and Research, JOE HAVEL

THE last three years have been an eventful period in the history of research in jarrah dieback.

Safety Record Awards

THE district staff at Pemberton clocked up a year's work without a lost-time accident on May 22.

A major safety achievement, the effort earned the district the honour of receiving the Executive Director's first Individual Safety Awards on Friday, June 21.

The award is a continuation of the previous conservator's award and the same rules have been adopted: The whole district (or division as it was called in the past) has to work one year without a lost time injury accident.

The Executive Director, Syd Shea, congratulated the office-in-charge, Bob Hagan, and all the staff.

The District team of 56 now includes Karl Mucjanko, the local parks ranger.

The Minister assisting the Minister for Conservation and Land Management, Dave Evans, presented staff with personal travel bags to mark the occasion.

On May 10 the staff at Narrogin completed three year's work without a lost time accident.

Senior management, including Executive Director Syd Shea and Policy Directors Barry Wilson and Joe Havel, travelled to Narrogin for a Safety Presentation on Thursday, June 27.

Syd Shea told the staff that their safety performance was an outstanding achievement.

NOTE: Both the Nannup and Walpole districts were expected to qualify for annual awards at the end of June.

The most notable event was the occurrence of climatic conditions leading to disease outbreaks of a kind rarely seen during the last 20 years.

These outbreaks allowed critical testing, and in some cases modification, of hypotheses about the tree-pathogen-environment interaction.

Scientists with the Department now have a far better understanding of the conditions leading to the establishment of the pathogen (*Phytophthora cinnamomi*) and to the development of the disease.

In particular, the researchers have better insights into the characteristics of sites and influences that may tip the balance in favour of the disease, or of the forest.

Research is currently in progress to define the mechanisms used by infected jarrah trees to resist or contain fungal attack.

Natural resistance can strongly influence whether jarrah survives or succumbs to the disease on marginally susceptible sites.

A large number of artificial inoculations, more than 3000, combined with microscopic studies of the progress of the invasion through the tissue, have shown that jarrah trees have a range of defence mechanisms that curtail the spread of the fungus.

The effectiveness of these barriers varies with season and site.

There are, however, indications that there is some variation between trees, which is independent of site and season, and so there is a parallel but much smaller research programme aimed at finding out whether there is genetically based resistance or tolerance to the disease, and how this can best be used in rehabilitation of disturbed sites.

There has been good progress made in developing appropriate tissue culture methods and testing a number of families for resistance.

Progress in disease detection techniques has also run parallel to this

progress in understanding the way *Phytophthora cinnamomi* attacks and kills jarrah.

All areas scheduled for forestry operations are now examined by detailed aerial photography and ground checks and the information gained is used to schedule operations to minimize the likelihood of spreading the pathogen.

Disease management is further backed by legislation, defining quarantine areas and allowable operations, and aerial and ground surveillance of areas at risk, so the Department's efforts cover the full cycle — from basic research to broadscale field application.

Survey sh

By Wildlife Officer,
KEVIN MARSHALL

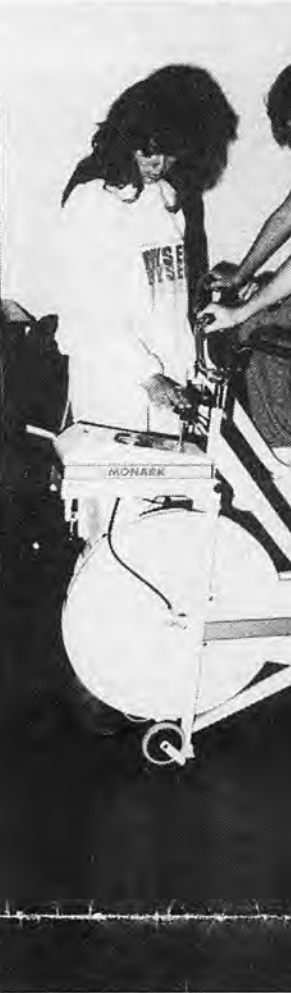
THIS year's bird surveys in the North West have produced exciting results for ornithologists, and seem to indicate a distinct improvement in some populations.

The highlights of the expedition were the sighting of a Dowitcher, the capture of a Red Shank, and the re-capture of a Red Necked Stint banded in Russia.

Reported sightings of Flock Pigeons on two separate occasions during late March were also extremely encouraging.

During cannon netting operations on the Anna Plains (Eighty-mile Beach) and Roebuck Bay, at Broome, some 4100 wading birds were trapped, banded and recorded.

The 15 different species recorded included: Grey Plover, Mongolian Plover, Large Sand Plover, Red-capped Plover, Turnstone Little Curlew, Grey Tailed Tattler, Greenshank, Terek Sandpiper, Red Knot, Great Knot, Sharptailed Sandpiper, Red-necked Stint, Curlew



HELEN FORDHA exercises while Anthro (UWA) monitor the



RESEARCH Assistant Joanne Barclay monitors the extent of *Phytophthora* invasion in the living bark following inoculation. A lunchtime seminar on the "Effect of site on the susceptibility of jarrah to *P. cinnamomi*" will be given by Dr Joanna Tippett in the Research Auditorium, Como, on August 16.

Sandpiper and Sand-erling.

Some mist netting was also undertaken at the Leslie Salt Works at Port Hedland.

Aerial surveys conducted from Cable Beach, at Broome, to Wallal Downs, along the Eighty-mile Beach, revealed that about 180,000 wader birds were still frequenting this portion of coastline.

However, large numbers were seen leaving the WA coast near Broome for Indonesia at twilight between April 16 and 20.

The observations were made using the Meteorological Bureau radar.

In early March, the pilot associated with the Wader Expedition, saw a flock of about 300 pigeons.

These birds were sighted while flying over Anna Plains Station, 300km south of Broome.

The pilot, a Royal