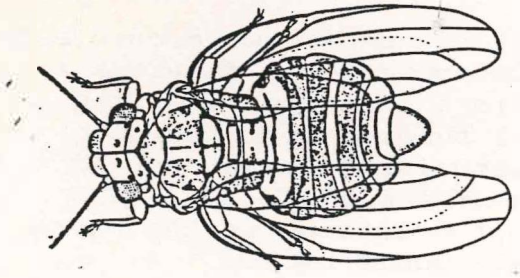
RAG

FEBRUARY 1989



ENTOMOLOGY

January and February is a busy time for the Bugologists! The new year saw Pete, Bill and Janet running around with a cherry picker sampling jarrah crowns for gum leaf skeletonizer. This was a new experience for our team and amidst the concentrated sampling effort we not only became familiar with the temperamental nature of the beast but also discovered there was no safety prescription for its use. This was further complicated by the installation of a new safety switch in the machine during early 1988. But with the concerted effort of Pete and the patience and help of John Rooney a safety prescription has now been formulated. However we are now investigating the possibility of using a truck mounted cherry picker.

Bugology has also discovered that our elusive lerps are on the move. Leaf tagging at a plot near Cranbrook has started to unravel the puzzle of its biology and we have started to find adults. We still have a long way to go but adult specimens will help us determine this insects identity with more confidence.

Good news came to Bugology in eary January when we heard the plans of our insectory had been finalized. It is now a matter of time before the white cathedral on the hill near the weather station will be no more and in its place a building designed for the study of insects. Then some <u>real</u> Bugology can be done.

Janet Farr
Peter Skinner
William Frost

KARRI SILVICULTURE

I have always been amused and somewhat mystified at the number of stories told by foresters of old about their 'chaining days' in the karri forest. 'It can't be <u>that</u> thick' said she from the north. Boy, was I wrong ! A couple of weeks stomping through 21 year old karri regrowth has changed my mind. It's <u>bloody</u> thick - and I'll argue with anyone that says otherwise.

It's all in the aid of karri silviculture research though - so I guess it's worth it.

We are currently setting up a new thinning ad fertilising experiment down in Poole Block. The area receives quite a bit of rain, but is known to be low in phosphorous - so we are thinning most stems at 300 sph (except the controls), and fertilising with various combinations of Agran and Superphosphate.

Colin Ward and work experience student Karen Faunt (from A.N.U.) can take most of the credit. They've slashed their way around plots, pushed through Choraleana and Sword Grass marking trees - and had more than their fair share of bullant bites (even on the bum - eh Karen !).

Our spot sowing trial is still being assessed monthly - some of the seedlings from the July - August sowings are bursters ! The later sowings haven't survived as well - a combination of poor seedbed selection and lack of rainfall. We've learnt a fair bit from the Spring trial and are just about ready to tackle a larger experiment this Autumn. John Rooney has the planning of this in hand.

We've been busy little silviculturalists for the last few months - and will be for the next few months to come.

Penni Hewett
Colin Ward
John Rooney

ECOLOGY

Spring/summer 1988/89 has been a busy time in the field for the Ecology section. Bird census, pitfall trapping and searching were carried out during December 1988 at the 90 Hilltop block survey sites in the Walpole Nornalup National Park. 32 of these sites were burnt in the January 1987 wildfire. Bird census work is also scheduled for February/March 1989. Additional sites have been located for censusing to compare the edge effect of sharp ecotones at Walpole with those of clearfelled coupes/mature forest edges near Manjimup.

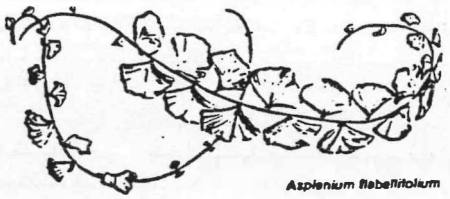
Field work to provide a year round flowering calendar, life form and response strategy for the flora of the Walpole Nornalup National Park continued during December, January and Febraury 1988/89. Over 600 species have now been collected from the park.

Bird census, foraging observations and mistnetting was carried out in the six year long study in Gray forest block during November 1988 and will be completed for February 1989 by 20th February. Over 800 birds were captured in mistnets during November. Most species caught are residents of small range and high site fidelity and recapture rates are very high for all study sites.

91 permanently marked quadrats have been established in karri forest of community type Shea of different management history i.e. different ages since logging and/or burning and/or thinning. The initial inspection, aimed at providing a complete list of the flora within each quadrat, is complete, voucher specimens collected and data punched. Progress planned for the next six months involves revisits to these quadrats where species were noted but not identified and subsequent visits during August and October to complete the list for the quadrats. Pitfall traps and drift fences have been established and initial trapping program carried out, to provide complete lists of the vertebrate fauna for the coupes in which the quadrats are located. Progress planned during the next six months includes searching during March/April plus checks at night at various times to ensure thorough sampling of the vertebrate assemblage.

Drafts of two papers were completed during December. One provides a list of the flora collected from the Warren botanical subdistrict; the other reviews studies of relevance to the response of the biota to forest management practices in the Warren botanical subdistrict.

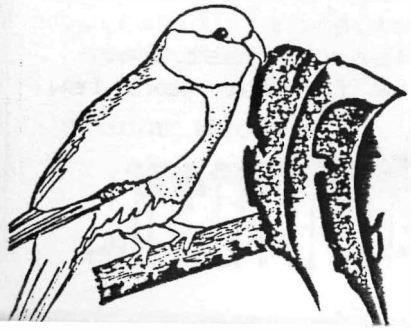
Grant Wardell-Johnson
Tony Annels
Graeme Liddelow
Chris Vellios
Karan Maisey
Ian Wheeler



MANJIMUP REGIONAL HERBARIUM

1989 saw the birth of the Manjimup Regional Herbarium, (perhaps re-birth is better description as the herbarium existed before in the form of the Manjimup Research Centre Herbarium). After a meeting with Bruce Maslin and Sue Patrick from the Perth Herbarium goals and standards for the "new look" herbarium were set. We decided the the Como collection (specimens from all over the state - Port Hedland to Esperance, Rottnest Island to Lake Grace - collected by Joe Havel, Roger Edminston and a host of others) would be better located in Perth. The collection was large and a valuable resource and we felt it would be better utilised in a central location (and we'd then have more room for our own ever expanding collection.

The Herbarium will represent the Southern Forest Region or the Warren Botanical subdistrict and a section of the Menzies Botanical subdistrict. Special collections and extensions to this area will occur as required. The specimens will either be Voucher specimens or duplicates (duplicates will be retained in Manjimup when the main voucher collection is to be held



The other 'big' change in the herbarium is the change of sheet size on which the specimens are mounted. We will now be using the large, standard sheets and will conform to all other labelling standards set by Perth (international standards no less !)

Don't let all this change put you off using the Herbarium, each collection is only as valuable as the use it gets. We will all need to take a little more care when handling specimens as we'll be progressively removing specimens from their plastic coverings and storing them in flimsies (another standard). When you want to remove a specimen lift it, and the others on top out, please don't drag it out, as we've all been used to being able to do.

There's a small amount of chaos at the moment as Tony Annels and I sort out the interminable piles of Walople/Nornalup National Park specimens but there'll soon be enough floor space to visit on, we hope !

Ray Cranfield will be visiting the Herbarium in March to check our identifications and ensure that the current names are being used (these botanists just love changing names !)

Michelle Pree
The Curator.

FIRE RESEARCH

Karri forest fuels dried out quite rapidly in spring 1988 and by early December conditions were right for prescribed burning in younger regenerated stands. Operational trials to test burning prescriptions developed from research studies have been undertaken each summer since 1985. The purpose of these trials is to involve District staff in the research process and provide information on important operational factors such as ignition patterns, suppression requirements and cost. An area of forest in Babbington block that had been regenerated following the 1969 Boorara wildfire was selected after a preliminary inspection of fuel conditions and stand developments with staff from Pemberton District. Burning took place over several days commencing with ground lighting around the perimeter; this was followed by an aircraft lighting along several widely spaced flight lines. Fires behaved as predicted and resulted in low crown scorch heights and only minimal ignition of old logging debris.

The fire research project at the Stirling Ranges continues to move ahead. Dieback interpreters Mal Grant and Colin Hooper trudged many kilometers back and forth across the proposed experimental site in the process of conducting a thorough dieback survey. They were followed soon after by Bob and John who marked out the network of tracks and buffer strips that will convert an ordinary patch of Stirlings scrub into a set of 4ha plots suitalbe for the pursuit of scientific excellence. Tony Smith, Ranger-in Charge at the Stirlings has done his bit by supervising the road upgrading operations. In fact, even the neighbouring farmer had a chance to do his bit when play was halted by a flat battery! Burning of strategic buffer strips around the plots should go ahead in March and with a bit of luck 4 experimental fires should be completed this autumn.

The other aspect of this job to receive attention has been the development of stereo photrography for measuring flame characteristics. With assistance from Paul Biggs, Bunbury Inventory Branch, we have developed a technique that should provide accurate estimates of flame height and fire perimeter.

Lachlan McCaw
Bob Smith
John Neal

COMPUTING AND BIOMETRICS

Admin. Systems.

A suite of programs have been developed to assist the administration functions. These include:

Financial Update: this provides a method of recording all local finances. Records are kept of all individual expenditure items, expenditure committed and paid and suppliers used. Input to the system is from requisitions, LPO's, Form 10's etc. Reports can be generated detailing all expenditure committed and paid against each account code. Details of payment (date and cheque No.) can also be entered into the system.

Staff Details: this records details of each staff member and also allows input of leave taken and applied for. Balance of leave remaining is calculated. Also included is a training register which records details of training courses held and attendance.

Equipment Register: this is used as an inventory of all local equipment, its current location and status (written off, transfered etc). The printout from this section is invaluable for completing forms for Internal Audit at Stocktaking time.

Documents: this allows users to generate memorandums in exactly the same format as CALM Form 80B. These may then be printed on a letter quality (eg. EPSON LQ1000) with impressive results. Memos are saved to disk and may be recalled for editing. This system also doubles as a bringup system for printing reminders at a given date. The system interacts directly with the Network Electronic Mail (NEM) enabling memos to be sent automatically via NEM.

Mail: is used to record inward and outward mail. It provides a periodic report for distribution to staff giving details of all inward mail with an action and note list attached.

Manjimup Research have been using these systems for the past eight months and have found them invaluable. A comprehensive user manual is also currently being compiled. For further information give me a call.

Yvonne Woods

DIEBACK RESEARCH

Degredation of plant communities by dieback is a serious problem in the southwest of Western Australia. A large number of plant species are susceptible to the disease, and important families contain a large number of susceptible species. Investigation of disease impacts on forested areas has been extensive, but few studies have been conducted outside the areas of state forest. In particular, little information is available concerning the effects of the dieback pathogen on the "kwongan" (shrubland type vegetation growing on sandplain) of the Northern and Southern Sandplains. These regions have long been recognised for their floristic richness and high degree of endemism. Much of the richness and endemism is centred on two nodes of diversity in the Enneabba-Mt Leseur region of the Northern Sandplain and in the Stirling Ranges in the Southern Sandplain. Many species in the largest kwongon families, the Myrtaceae and the Proteaceae, are affected by *Phytophthora cinnamoni* while species of Epacridaceae of the southern kwongon regions may be entirely susceptible to the disease. The spread of dieback into these areas may cause major changes in the floristic structure of these communities, and would have a deleterious effect on the conservation values of these areas. The Stirling Range National Park was chosen as a location for studies to assess the possible impacts of dieback on the kwongon communites of the Southern Sandplain.

Since starting in November I've done eight trips to the Stirlings including four major collecting trips. During this time I've collected plants from 35 sites in plant communities from 10 different soil types including four peaks (Donnelly, Toolbrunup, Mt Trio and Bluff Knoll). Collections have yielded a total of 359 species represented in 296 herbarium vouchers and 313 field vouchers. With over 1000 species from the Stirlings, I've only covered just over a third of the flora, although fortunately I'll not have to worry about annuals and geophytes since most of these will be dormant during the period of my field work. I use photography as a permanent record of field observation and so far I've taken over 360 photographs, principally as a record of plants in flower. All the work so far has more or less been a familiarisation run, with the main part of the field program starting at the end of this month and continuing for about five weeks. Gordon Baird, an Honours graduate from the Department of Botany, will be joining Research on February 14 for about 3 months to assist with field studies and subsequent data analysis.

Ray Will's