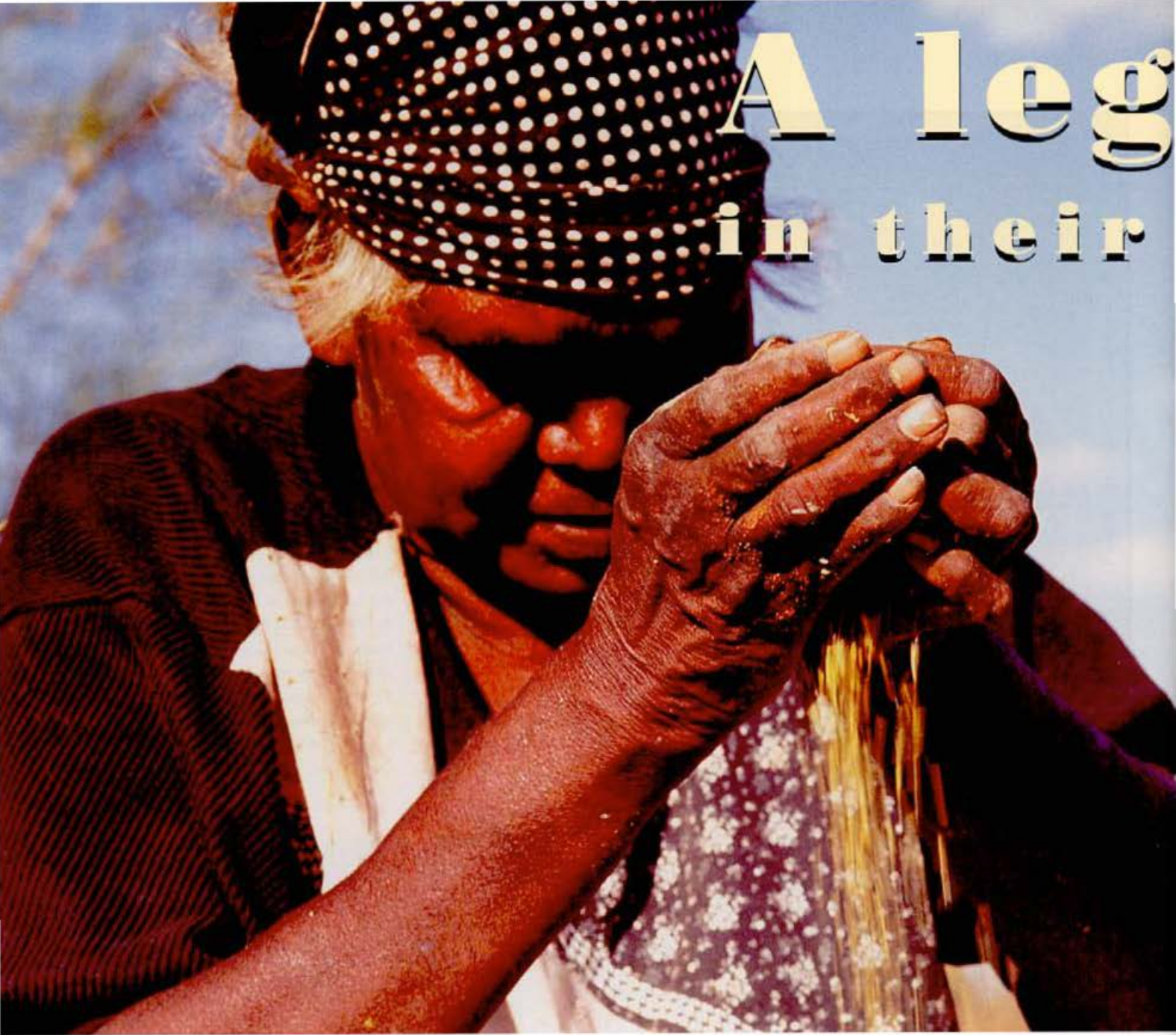


A leg in their



Oliver Strewe/ATSC

Soaking: The seeds of *A. coriacea* can be mixed with water to make a sweetish, refreshing drink or paste (depending on the amount of water used). The flavour comes from the large, bright orange aril attached to the seed.

REGULAR, intensive processing of acacia seeds is thought to have begun well after Aboriginal people settled central Australia at least 20 000 years ago. Archeological research puts the earliest examples of specialised seed grinders at about 1000 years old.

Today, some Aboriginal people collect seeds for the bush tucker industry, occasionally for their own consumption, or to demonstrate traditional preparation methods. Despite the decline of regular seed processing, people in remote communities retain extensive knowledge of traditional practices. From them much has been, and is being learned about plants and their uses.

The arduous task of collecting and processing acacia seeds is outlined by Jeannie Devitt in *Australian Dry-zone Acacias for Human Food*, the proceedings of a 1991

workshop at Glen Helen in the Northern Territory. Devitt, an anthropologist, has worked extensively in the Sandover River region of central Australia. Her paper combines a review of published material with first-hand observations of seed-preparation by local women.

Grasses and wattles were the two most important plant groups used for their seeds. Devitt found the uses of 49 *Acacia* species as food sources to be documented. Of these, most provided edible seed. Acacias also provide edible gums, lerps, nectar, ash for mixing with tobacco, and medicinal ingredients. Some are hosts to galls of wasp larvae and others to larger, edible grubs such as the witchetty grub, which is found in the roots of *Acacia kempeana*, the witchetty bush. Mulga (*A. aneura*) is associated with the well-known honey ant.

acacia hands

Oliver Strowe/ATSC

The pictures on this page were taken at Yuendumu in the Tanami Desert, 300 kilometres north-north-west of Alice Springs, home of the Walpiri people. The Yuendumu community is taking part in one of Australian Tree Seed Centre's four acacia seed trials.

Gathering seeds: Kay Ross Napaljarri collects green pods of *A. coriacea*.

The pods of most large-seeded acacias can be gathered and eaten before fully ripe. The green pods are eaten raw immediately, or steamed open on a fire. Usually the pods are left on the branches, which are placed on a small fire for up to a couple of minutes then turned over, the process being repeated on the other side. Seeds are then removed from the pods by hand and eaten immediately.

Most acacias seeds, however, are collected dry. Each collector swiftly strips a branch of pods and places them in a container. The pods must be dry enough to release most seeds when threshed.



Oliver Strowe/ATSC



Threshing: Rosie Fleming Nangala beats pod-bearing branchlets of *A. adsurgens* with a stick to break up the pods and release the seed. The branchlets are piled into heaps on a blanket (traditionally on a patch of clear hard earth). Seeds eventually fall to the bottom and coarse plant debris is discarded from the top.

Another method of threshing involves women standing in a small pit (with a branch or tree for support) and using their feet in a rapid, circular motion to break up the pods and release the seeds.

Maggie Long Nakamara hand winnows seed of *A. adsurgens*.

Devitt's paper highlights the complexity and tediousness of acacia-seed preparation. She estimates that it takes about 5.7 woman-hours to produce a kilogram of wet seed meal from *A. coriacea*, including seed collection.

The combination and sequence of seed-preparation techniques varies according to the particular seed being prepared. Hard-cased acacia seeds such as *A. coriacea* require the lengthiest combination of processing techniques. *A. coriacea* and *A. victoriae* require parching, pounding and grinding, whereas mulga is parched, then ground.

The seed-preparation techniques described on these pages combine Devitt's knowledge with that of Australian Tree Seed Centre (ATSC) botanist Jock Morse who has observed seed preparation during his extensive field work in Central Australia.

Oliver Strowe/ATSC



Cleaning: Maggie Long Nakamara uses a coolamon to separate heavier *A. jennerae* seed from lighter chaff and debris. This process, called yandying, involves rhythmically rocking the mixture in a shallow, wooden bowl. The light material moves to one end, the heavy to the other, with the seed remaining in the middle. Hand winnowing in the wind is another method used to remove dirt and plant fragments (see main picture).



ATSC

These pictures were taken during a seed-preparation demonstration by Sandover River women during a 1992 workshop at Glen Helen.

Parching: Some acacias have hard outer seed cases and require parching, probably to increase the brittleness of the case before grinding. Small quantities (about 200 grams) of cleaned seed are placed in a tray. Using a bark spatula, this is covered with hot soil, ash and coals from the fire and stirred through the seeds. After parching, the seed is separated from ash and other debris by yandyng and winnowing.



ATSC

Grinding: The cleaned seed is ground on a large grinding stone (*ather*) using a smaller grind stone or muller (*tyeng* or *alyer*). The seed is ground towards the edge of the *ather* and caught on a tray beneath. Water is trickled onto the muller as a lubricant, eventually producing a thick seed paste. Traditionally, people ate acacia seed meal this form.

Cooking: The paste is poured onto the coals and ashes of a burned-down mulga fire. The ashes are hot enough to seal the 'damper' quickly and prevent it from seeping down into the fire. Cooking time is three or four minutes.



ATSC



ATSC

The finished product: the black lump sitting on the grindstone! No wonder white bread and flour had such a powerful impact on the diet of Aboriginal people. The 'damper' is allowed to cool, then is cleaned of coals and sand before eating. According to Jock Morse, it tastes great!

Protecting intellectual pro

SERIOUS legal and ethical issues arise from the use of traditional knowledge of native plants and animals for food and medicine which Aboriginal and Torres Strait Islander people have developed over thousands of years. In the years since colonisation, indigenous communities have often trustingly imparted such knowledge to visitors without any thought that the visitors might commercially exploit it.

Commercial exploitation has often occurred, ranging from sophisticated medicinal drug development based on traditional medical knowledge, through to non-indigenous 'eco-tourism' operators exploiting knowledge of traditional foods as part of a

'bush tucker' experience for tourists. This exploitation often occurs without acknowledgment of the traditional indigenous sources of the information and with little or no reward to the communities whose knowledge is involved.

In recent years, the broad issue of establishing an enforceable right to protect indigenous cultural knowledge of food and medicine (or indeed of art, music and dance) has become a major social justice issue for Aboriginal and Torres Strait Islander communities and organisations.

During extensive consultations throughout Australia in late 1994, the Council for Aboriginal Reconciliation and the Aboriginal

and Torres Strait Islander Commission (ATSIC) encountered widespread calls for a statutory legal basis to protect such cultural knowledge. The Commonwealth Attorney-General's Department has now published a discussion paper canvassing options for statutory protection. In their separate social justice submissions to the Prime Minister in March 1995, the Council and ATSIC each recommended statutory protection of such cultural knowledge.

Aboriginal and Torres Strait Islander art, music and dance are now significant industries earning many millions of dollars in export revenue for Australia. They also present an unique Australian indigenous cultur-



What's in a taxon?

COLLECTING, identifying and using *Acacia* seeds can be a confusing business, particularly when the species are both newly 'discovered', and widespread in their natural geographic range.

The naming of acacias, as with all plants, is governed by an international framework. Under the International Code of Botanical Nomenclature, formulated in 1905, the plant kingdom is organised into a hierarchy of ranks that share common characters. These ranks are order, family, genus, species, subspecies and variety. Each rank is broader and more general than the next and lower rank. Hence a member of one rank will contain one to many members of lower ranks. For example, a family contains many genera and each genus contains many species.

The basic unit of plant classification is the species. This name is made up of two words: the name of the genus to which the species belongs, and a specific or species name.

In all classification systems the word 'taxon' describes something that is clearly distinct from all other entities. In botanical classification, a taxon can exist in any rank, but the term commonly refers to a particular species. Taxa is the term used to refer to collections of taxons, and the study and application of principles and practices of classification is called taxonomy.

For example, the taxonomic or botanical 'code' name for the taxon commonly known as elegant wattle is *Acacia victoriae*. *Acacia* is the genus, *A. victoriae* the species. The name used for a plant or group is based on particular 'type' specimens stored in herbaria.

To complete the official name of a particular rank, the name of the person who first described or named it is usually added. This means *Acacia* is officially *Acacia* Miller (because Miller described the genus *Acacia*), and *A. victoriae* is *Acacia victoriae* Benth. (because Bentham described the species *A. victoriae*).

A kingdom of change

Botanical names established under the International Code of Botanical Nomenclature enable people around the world to identify and cite plant species without having to worry about different languages or classification systems. Because botanical knowledge is always expanding, however, new names are introduced and older ones sometimes dropped in light of new information about the characteristics of each taxa, and the relationships between them.

Ultimately the establishment or dropping of names depends on the publication of papers written by botanists that describe the taxa, and reasons for the proposed change. It also depends on whether their peers agree. Argument about the status of names may continue in the scientific literature for years, and some taxa may undergo several changes before their names and relationships are accepted by most botanists.

In the midst of such change are some of Australia's inland acacias. Trials conducted by CSIRO's Australian Tree Seed Centre (ATSC), and detailed examination of plants in nature, have revealed different growth and survival characteristics among acacias previously considered morphologically similar enough to belong to two species (*A. cowleana* Tate and *A. holosericea* A. Cunn.).

As a result, three additional species – *A. colei* Maslin and L. Thomson, *A. thomsonii* Maslin and McDonald (in press) and *A. neurocarpa* A. Cunn. ex Hook. – have been formally recognised. A fourth, *A. elachantha* MS, will be published soon. (The 'ex' in *A. Cunn. ex Hook.* indicates that Cunningham

made the collection and described the taxon in his notes, recognising it as new, and Hooker wrote the formal description of the taxon which was published. MS, short for manuscript, indicates that a name is in use, but not yet published.)

Three of these species are 'new', while *A. neurocarpa* A. Cunn. ex Hook., is an old name that has been resurrected. The species was first described in 1837 by Cunningham and Hooker, but in 1978, Queensland herbarium taxonomist Les Pedley argued that it was no different from *A. holosericea* A. Cunn. As a result, the name *A. neurocarpa* was dropped. In 1993, WA Herbarium taxonomist Bruce Maslin put forward a new case for the existence of *A. neurocarpa* as a separate entity. Hence its reinstatement.

Other *Acacia* taxa may be reviewed in future. For example, ATSC has recognised several distinct forms of *A. dictyophleba* F. Muell., *A. tumida* F. Muell. and *A. torulosa* Benth. ex F. Muell. in the field in the past two years. *A. victoriae* was reviewed in 1993 by Maslin, resulting in the description of five new species from various locations across the range of this widespread group!

Keeping track

In view of changes such as these, how does anyone know which actual tree or seedlot belongs to what species?

According to ATSC botanist Jock Morse, the only way that taxonomic certainty can be achieved in botanical research is by collecting and holding voucher specimens of the plants of interest. For example, it is vitally important that the botanical integrity of ATSC seedlots is backed up by voucher specimens for each collection.

'In the case of our trials, we need to be certain that when we make statements about particular species and their performance, we can, at any time in the future, refer back to a voucher specimen lodged in a herbarium to verify the current name/identity of the entity we tested,' Morse says.

'If we did not hold voucher specimens for our seed collections, it might become impossible for us to say which of the entities our seedlots represent.'

Bryony Bennett

party

al image to the world. Food and medicines from Australian native flora and fauna also have significant economic potential for indigenous communities.

While the debate goes on about the appropriate method to protect traditional owners knowledge, conscience dictates that such knowledge should be regarded as an asset of its traditional indigenous custodians. It should not be exploited by others without appropriate arrangements being made with such traditional indigenous owners.

Tim Moore
Secretary, Council for Aboriginal
Reconciliation