

3. TRADITIONAL ECOLOGICAL KNOWLEDGE AND ETHNOBOTANY

3.1 International Context

The Wai262 effort to protect and to enhance matauranga Maori and to insist on te tino rangatiratanga o te iwi Maori in Aotearoa is not an isolated phenomenon. Throughout the world indigenous peoples are networking in order to preserve their culture, traditions and ways of life from the ever-threatening and often totally overwhelming impact of governmental policies of modernisation and development. Even with a greater awareness of ecological deterioration, and prophecies of impending environmental disasters which may endanger the prospect of human beings surviving as a species on this planet; even with all the efforts of governments and non-governmental organisations represented by the 'Earth Summit' in Brazil in 1992; yet still the catch phrase is development – albeit now qualified by the notion of 'sustainable development'. D A Posey, an eminent scholar and prolific contributor to debates concerning intellectual property rights and the rights of indigenous peoples, had this to say about the 'Earth Summit' (properly known as the United Nations Conference on Environment and Development):

Valuing biodiversity through biotechnology development and establishing the ground rules for 'the sharing of benefits' from biogenetic resource acquisition and manipulation were the underlying motives for The Earth Summit. The global gathering recognised that genetic resources, and the knowledge of traditional and indigenous peoples about those resources, are the bonanzas of the future – they are the newest 'last frontier' that will justify explorations and drive future economies.

Will indigenous peoples be a part of that future? Undoubtedly, since their knowledge has irrefutably been shown to reveal sources for valuable new medicines, fertilizers, foods, oils, essences, repellents and insecticides, building materials, dyes, colourings, etc. The lands and territories they have defended, occupied, and ecologically moulded over the millennia are the sources of this new wealth. The question is:

will they benefit from these developments, or will they become yet again the victims of an expanding frontier?

I doubt that any of us will benefit in the long run. The Earth Summit was more of a political game to re-divide the world's resources between new global players than a gathering to address the issues of poverty and environmental degradation. Environmentally rich countries want to be given as much power as technologically rich countries. One has to admit that 'bio-culturally rich' vs 'industrially rich' is at least more pleasant to the ear than 'developed' vs 'un- or under-developed countries', 'northern' vs 'southern', or 'first' vs 'third world'. No matter the dichotomy in vogue, the consumer society will eat its way to the collapse of the global environment and/or economy (which ever comes first).

There may be no stopping it! Best strategy: try to support, protect, strengthen, and empower those indigenous and traditional societies which are still relatively free from the destructive system.¹

His is not a lone voice. The United Nations Research Institute for Social Development has produced important discussion papers including 'Salvaging Nature: Indigenous Peoples, Protected Areas and Biodiversity Conversation'² and 'Parks, People and Professionals: Putting Participation into Protected Area Management'.³ Organisations such as the International Indigenous Commission have put forward reports including 'Indigenous Peoples' Traditional Knowledge and Management Practices'⁴ which examines the general characteristics of indigenous peoples' sustainable resource management practices, reviews the challenges faced by indigenous peoples in maintaining the viability and sustainability of their traditional forms of production and – most importantly in the context of this claim – recent experience with returning control of natural resources to indigenous peoples and the extent to which this has contributed to sound resource use and conservation. Moreover indigenous peoples meeting in many parts of the world have made their own pronouncements on their rights and their hopes and dreams. The best known example in Aotearoa is no doubt the International Conference on the Cultural and Intellectual Property Rights of Indigenous Peoples held at Whakatane in June 1993 which promulgated the Mataatua Declaration.⁵

1. D A Posey, *International Agreements and Intellectual Property Right Protection for Indigenous Peoples*, Institute for Cultural and Social Anthropology, Oxford University, pp 1–2

2. M Colchester, *Salvaging Nature: Indigenous Peoples, Protected Areas and Biodiversity Conservation*, United Nations Research Institute for Social Development Discussion Paper, no 55, September 1994

3. M P Pimbert and J N Pretty Parks, *People and Professionals: Putting 'Participation' into Protected Area Management*, United Nations Research Institute for Social Development Discussion Paper, no 57, February 1995

4. International Indigenous Commission, *Indigenous Peoples Traditional Knowledge and Management Practices*, report prepared for United Nations Conference on Environment and Development, June 1991

5. Appendix to A T P Mead, 'Cultural and Intellectual Property Rights of Indigenous Peoples of the Pacific', paper presented to Inaugural Indigenous Peoples of the Pacific Workshop on the United Nations Draft Declaration on the Rights of the Indigenous Peoples, Suva, 2–6 September 1996

3.2 Traditional Ecological Knowledge

One of the consequences of the burgeoning interest in the issues raised by indigenous peoples has been the development of a field of study generally referred to as traditional ecological knowledge (TEK). The term is not entirely apt as Dr Roberts has pointed out in a recent draft article, but it has become commonly accepted:

TEK as an acronym is used by different authors to refer to either traditional ecological knowledge or traditional environmental knowledge; in most cases both definitions are appropriate and acceptable. Perhaps the earliest definitions of TEK are found in references to 'folk lore', or 'folk taxonomies'. Classifications of plants and animals (ethnobotanical and ethnozoological taxonomies) have been extensively documented among many different groups of indigenous peoples; indeed Atran claims that ethnobiology (which studies the way in which human societies classify the things they perceive to be 'living kinds') forms the cognitive basis of all of the natural sciences.

These classifications demonstrate an understanding of the structural relationships of species; they also reveal an understanding of the functional relationships between plants, animals and humans within a particular ecosystem. Although local in nature, such knowledge has been shown to have functional equivalence in geographically widespread and distinct environments by means of comparative studies.

One drawback of using 'traditional' for this type of knowledge is that it may imply an arrested body of information rather than one which is being constantly added to, is continuously evolving, and of current not simply historical relevance. Another problem relating to the use of TEK is that many indigenous peoples prefer to talk about their knowledge of 'land', which includes, in addition to ecological knowledge, understandings of the spiritual world and its interrelationships with humans and their resources. Use of 'Indigenous knowledge' (IK) is more appropriate in this regard, and clearly defines the knowledge system as not only culture-based, but also autochthonous to that particular location, originating within that particular aboriginal society and thus distinct from the local traditional knowledge of non-aboriginal peoples.

However, TEK has gained widespread currency, and has been recently defined by a TEK Working group convened by the Government

of the Northwest Territories, Canada, as 'knowledge that clearly derives from, or is rooted in the traditional way of life of indigenous peoples'. It represents the accumulated knowledge and understanding of the human place in the universe, understandings which are reflected in the language, social organisation, values, institutions and laws of that particular culture.

Another definition, from the indigenous peoples of the Northwest Territories, explains that 'TEK is a body of knowledge and beliefs transmitted through oral tradition and first hand observation. It includes a system of classification, a set of empirical observations about the local environment and a system of self-management that governs resource use. Ecological aspects are clearly tied to social and spiritual aspects of the knowledge system. The quantity and quality of the TEK varies among community members depending on age, gender, social status, intellectual capability, profession (hunter, healer, spiritual leader etc). With its roots firmly in the past, TEK is both cumulative and dynamic, building on the experience of earlier generations and adapting to the new technological and socioeconomic changes of the present'.⁶

An example of the wide ranging nature of TEK studies, which was cited in the MoRST report on Matauranga Maori, is the collection of papers presented to a Traditional Ecological Knowledge Workshop held at the Australian National University.⁷

To give an indication of the substantive content of TEK, I quote again from Dr Robert's paper:

The following cosmological accounts draw largely on New Zealand Maori, North American Coyukon, and Beaver Indians or Dunne-za perspectives. From these examples the following basic premises common to these and possibly other indigenous cosmologies emerge:

there is no human : nature dichotomy

Humans are nature, and nature is human; nature is thus cultural. Everything in nature is living, and is frequently personified as human. There is thus no distinction between living and nonliving.

Moreover, animals may become human and humans may transform into animals.

6. M Roberts, 'Traditional Ecological Knowledge and Resource Management Systems: Past, Present and Future Perspectives', draft paper, 1995, pp 3-4

7. N M Williams and G Baines (eds), *Traditional Ecological Knowledge: Wisdom for Sustainable Development*, Canberra, 1993

All things are related

These relationships may be evidenced in genealogies (e.g. NZ Maori); in totemism (Australian aboriginal); in dreaming or vision quests (Beaver Indians). Thus humans share this world with kinsfolk; moreover according to NZ Maori, they are the junior kin in this environmental family.

All things are imbued with spirituality and power

There is thus no distinction between natural and supernatural; spirituality and its power is everywhere and in everything.

Arising out of this world view are a set of beliefs or rules of conduct which govern human relationships with each other, and with all other members of the environmental family. In most indigenous societies practising a conservation ethic these rules are based on the concept of respect and reciprocity.⁸

In another paper co-authored by five notable Maori women – Mere Roberts, Waerete Norman, Nganeko Minhinnick, Dell Wihongi (a Wai 262 claimant) and Carmen Kirkwood – there is an important discussion of Maori cosmogony with a highlighting of the fundamental importance of whakapapa and the personification of natural phenomena in the belief systems of Maori. At the conclusion of a discussion of Maori conservation ethics this observation is made:

perhaps the nearest one can get in attempting to define a Maori 'conservation ethic' in western terms is to describe it as one which is based on a *kin-centric* world view, (ie humans and 'nature' are not separate entities but related parts of a unified whole) that involves the concept of *reciprocated utilitarianism* whereby utilitarianism is defined as 'the ethical view that right conduct is determined by useful consequences, especially as it tends to promote the most good for the most people'. As Kirikiri & Nugent remark, in practise this conservation ethic is 'more akin to game management than to conservation, if conservation is seen strictly in the preservationist sense as the altruistic management of bird species for their own good rather than for the good also of the harvesters'. Interestingly, this 'Maori conservation ethic' is closely approximated by that of the IUCN-UNEP-WWF and which New Zealand has endorsed. Here conservation is defined as 'the management of human use of the biosphere so that it may yield the greatest sustainable benefit

8. M Roberts, 'Traditional Ecological Knowledge and Resource Management Systems: Past, Present and Future Perspectives,' draft paper, 1995, p 8

to present generations while maintaining its potential to meet the needs and aspirations of future generations.

Fortunately, albeit too slowly for some, there is a growing awareness among conservationists concerning the validity and possible utility of non Western world views pertaining to the environment. Understanding and acceptance by non-Maori New Zealanders of the Maori world view, allied with a commitment to honouring the guarantees made in the Treaty of Waitangi, will hopefully lead to a more respectful and reciprocal relationship not only with our environment, but also with each other.⁹

An element of 'a more respectful and reciprocal relationship' in relation to traditional ecological knowledge of Maori will no doubt include a careful reassessment of the ethics and parameters of research into such matters. It cannot be assumed that Crown Research Institutes and Universities should retain control over research into matauranga Maori and taonga Maori. An example of an alternative approach is to be found in this summary of ideas put forward by Dr Linda Smith:

In her just-completed PhD 'Nga Aho O Te Kakahu Matauranga: the multiple layers of struggle by Maori in Education', Linda Smith explores the twin issues of Matauranga Maori and a Maori research kaupapa in considerable detail. She reminds us that *'research is about satisfying a need to know, and a need to extend the boundaries of existing knowledge through a process of systematic enquiry'*, and that one of the first Maori research projects was the journey undertaken by Tane-nui-a-rangi to the twelfth heaven to obtain the wananga located within the three baskets of knowledge. G.H. Smith is quoted in this thesis as saying that *'kaupapa Maori research is (i) related to being Maori (ii) connected to Maori philosophy and principles (iii) takes for granted the validity and legitimacy of Maori, the importance of Maori language and culture and (iv) is concerned with the struggle for autonomy over our own cultural well-being'*.

In her summary Linda Smith explicates a set of principles which in her opinion form the basis of a Maori research kaupapa. These are:

- the principle of whakapapa
- the principle of Te Reo
- the principle of tikanga Maori

9. M Roberts, W Norman, N Minhinnick, D Wihongi, C Kirkwood, *Kaitiakitanga: Maori Perspectives on Conservation*, University of Auckland, 1995, p 13

the principle of rangitiratanga
the principle of whanau (including kaumatua as kaitiaki of Maori knowledge).¹⁰

3.3 Ethnobotany

Another field of study, with research and practical applications, which is highly relevant to this claim is ethnobotany. The claimant Dell Wihongi of the Pu Hao Rangi Maori Trust is responsible for the 'National Ethnobotanical Garden' known as Te Wao Nui a Tane. She has worked in partnership with staff of the Department of Scientific and Industrial Research and its successor Crown Research Institute – Manaaki Whenua/Landcare Research New Zealand Ltd. Her main collaborator Dr M J Parsons, has written an important paper defining ethnobotany and commenting on its importance generally as well as in relation to the Wai262 claim:

An increasing number of people in all parts of the world are becoming aware of the need to conserve both the rich plant diversity of this planet and the cultural knowledge that is associated with these plants. ...

Ethnobotany is the scientific study of how people have obtained the complex organic structures in plants for food, clothing and shelter; for tools and weapons; for medicines and cultural uses such as alcohol and narcotics. It is the study of the interactions between people and plants, or to put it another way, the study of plants and how people obtain various products from plants prior to their commercial exploitation and eventual domestication.

Ethnobotany as a discipline is a relatively recent science for the deliberate observation and recording of the traditional ways in which other people (particularly indigenous peoples) use plants. Within our western culture (i.e. European-derived culture) it has been going on in a general way since the written word began with the writing of herbals to record the botanical knowledge of the people of the land. The main interest then and now seems to be on medicinal plants and their curative properties.

10. M Roberts, *Moving Beyond Administration to Self-Determination in Science Education and Research*, University of Auckland, 1996, p 3

His article emphasises the holistic view of the environment and the classification Maori used to indicate the interconnected relationships of all things in the world around them:

Whereas mechanistic western science has divided the world into its parts; Astronomy, Geology, Botany or Forestry, Chemistry and Agriculture etc, usually forgetting their interconnectedness, Maori express the relationships of the world as a whole family through whakapapa (genealogy): Papatuanuku (mother earth), Ranginui (sky father), and their children Tane-mahuta, Rongomai-Tane and the other members of the family. In time these divisions recognised by Maori have become personified, as also has the whole of existence; they are now looked upon as people. For Maori the sense of whanau or family indicated the close relationship of all parts of the environment, and human beings, as descendants of Tane-Mahuta, were therefore an integral part of that environment.

The holistic attitude of Maori is emphasised by the fact that they consider they are, along with the plants and animals, all the children of Tane (Ko nga Aitanga Tane tatou katoa – We are all the Children of Tane), not separate or superior or exercising a dominant, exploitive role. This wholeness and interconnectedness is also expressed in Maori tradition and teaching of the importance of tapu – sacredness, Mauri – life force, Mana – status or prestige, wairua – spirituality, and kaitiakitanga – guardianship.

The uses of plants in the traditions of Maori agriculture and Maori medicine are part of an interrelatedness of all living things. The times for planting, growing, harvesting and storing of crops was part of the rhythm of existence coinciding with the seasonal cycles of the sun, moon and stars (the cosmos). The Maori New Year and the preparation of the soil for the next season's crops began with the appearance of the star group Matariki (the Pleiades) above the horizon in the early morning sky about 23–25 June.

He then acknowledges the significance of those Pakeha whose journals and writings have been and continue to be a treasure trove of ethnobotanical information on Aotearoa/New Zealand:

The botanists Joseph Banks (after whom the Banks Lecture is named) and Daniel Solander, and the others who kept journals on

Cook's first voyage to Australia and New Zealand (6 October 1769 to 1 April 1770), made the first written records of the way Maori used plants. These observations and the dried herbarium collections are particularly useful, since from that time on increasing contact with Europeans on voyages of discovery, and sealers and whalers following on hard behind, brought new plants and new technologies to these islands.

An example of the value of an herbarium specimen is Aute, or *Broussonnetia papyrifera*. Banks and Solander observed six plants of Aute growing in the Bay of Islands. They collected material to make at least one herbarium specimen, which is now the only definite record of the Polynesian introduction of this species. This particular introduction of Aute seems to have died out many years ago, as no one has collected it since. All present-day plants are from more recent introductions direct from China or Japan. ...

Much important ethnobotanical information was amassed by William Colenso and Elsdon Best. Colenso, initially a printer with the Paihia Mission Station, later a missionary and then a politician, collected many plant specimens which he sent to William and Joseph Hooker at Kew Gardens. Colenso's scientific papers are valuable ethnobotanical records of Maori cultural practices before extensive contact with Europeans intervened and brought about considerable changes.

Elsdon Best spent some 15 years living in the Urewera area in eastern Bay of Plenty, the home of the Tuhoe tribe. The unequalled ethnobotanical information Best recorded was later published in his books: 'Maori Agriculture' which is about cultivated food plants, and 'Forest Lore of the Maori', which contains lists of the many plants used by the Tuhoe people.

It must be remembered, however, that both Colenso and Best were products of their own culture, white, male, and under the influence of the Church missionary doctrine of the times. They spoke only to chiefs. It is mainly women, however, who are the healers in any community, and they have much of the information on medicinal plants.¹¹

With respect to the gender bias of Pakeha in the early contact period an amusing incident is recorded by R C Cooper and R C Cambie:

During the 1790s, the British authorities decided to establish a flax industry on Norfolk Island, where *Phormium tenax* is a native plant.

11. M.J. Parsons, 'Ethnobotany – A Maori Perspective', in *People, Plants and Conservation: Botanic Gardens into the 21st Century: Conference Proceedings*, Wellington, Royal New Zealand Institute of Horticulture, 1992, pp 73, 75–76

Two Maori men were taken to the island to advise on processing the leaves, but were of little help as this work was done by Maori women. David Collins, Secretary-General of the Colony of New South Wales, wrote an account of the Norfolk Island venture, and it was published in London in 1798.¹²

Mention should also be made of the pioneering contributions to ethnobotany as a modern field of study which took place at an International Workshop on Ethnobotany held at Te Rehua marae, Christchurch in February 1988. The workshop was convened by the Botany Division of DSIR and the Commonwealth Science Council. One of the Wai 262 claimants, Saana Murray, played a very significant role in the workshop. Another, Dell Wihongi, was galvanised, by the contribution of Dr D Yen on the fate of kumara tubers once held by the DSIR but then exported overseas to Japan, to take the actions she will give evidence about in arranging the return of the ancient kumara species to the soil of Aotearoa. The proceedings of that Workshop were later published.¹³

At this point I think it needs to be noted that some of the literature reviewed has a tendency to contrast the 'two worlds' of Maori and Pakeha in a manner which bears some resemblance to the dualism in 'Western' thinking which many indigenous peoples generally repudiate in favour of a holistic approach. It has to be said that there are approaches to science and the environment within Pakeha or 'Western' discourse which fall well outside the paradigms of the 'mechanistic western science' Dr Parsons speaks of. The philosophising of those who have been excited by the insights of modern quantum physics and the search for an appropriate spirituality by those who call themselves deep ecologists would be obvious examples. Dr Roberts is aware of the need for some caution in making sweeping 'two worlds' generalisations¹⁴ and yet there do remain important reasons to insist upon the distinctiveness of indigenous perspectives in the strong way that the Wai 262 claim does:

Increasingly however, many western conservationists are rejecting this traditional 'man-nature' dichotomy and are developing new conservation paradigms which seek an understanding with, and accommodation of the world views of indigenous peoples. As Suzuki and Taylor point out, mainstream western Society readily embraces elements of traditional knowledge about nature 'as long as they are suitably couched in sentimental, romantic, or culturally subordinate terms ... but the in-

12. R C Cooper and R C Cambie, *New Zealand's Economic Native Plants*, Auckland, 1991, p 81

13. W Harris and P Kapour, *Nga Mahi Maori o te Wao Nui a Tane*, Christchurch, 1990

14. M Roberts, *Teaching Indigenous Knowledge and Western Science*, Centre for Pacific Studies, University of Auckland, 1996, pp 6 and 10

stant that (Native) visions of the natural world ... and the intellectual capacities of the generations of (Native) minds that helped shape them are presented on a par with ... Western ideas, presumed by many to have long since culturally superseded and displaced them, our cultural and racial biases often become more apparent'.

These views are shared by Cox and Elmquist who argue that 'the belief that Western paradigms are intrinsically better than indigenous world views is still a potent, if unarticulated conviction among some. Although the sun appears to have set on the days of colonial expansionism by Western powers, the latent ethnocentrism reawakened by colonialism remains deeply embedded within European societies'. This ethnocentrism, defined as 'the deep-seated belief that our way of doing things, our world view, our paradigm, is inherently superior to all other possible paradigms' has two aspects. First 'there is a latent unwillingness to consider indigenous paradigms from the inside out, rather than evaluating them in western terms. And second, there is sometimes manifest an overt hostility when confronted with indigenous ways' particularly if these conflict with the Western paradigm'.

However, some of these efforts at accommodation with indigenous perspectives while commendable in principle, fall victim to several inherent dangers. Perhaps the least innocuous is the propensity to romanticise indigenous knowledge, by falsely assuming that these belief systems contain long lost wisdoms universal to all peoples of all cultures. More serious are the problems which can arise through efforts to integrate the two world views into a single new system of conservation management.

According to Dwyer such problems can arise as a result of confusing similar (but analogous) outcomes of indigenous ecological and western conservation practises by assuming, incorrectly, that they derive from similar homologous conceptual underpinings and motivations.¹⁵

3.4 Concluding Comment

Traditional ecological knowledge and ethnobotany have the capacity to play an enormously important role in the steps that international organisations and national attempting governments are now tentatively at-

15. M Roberts, W Norman, N Minhinnick, D Wihongi, C Kirkwood, *Kaitiakitanga: Maori Perspectives on Conservation*, University of Auckland, 1995, p 12

tempting to initiate in order to limit the massive loss of biological diversity which has resulted from industrialisation and colonisation in the last two centuries. Efforts in that direction have been a focus of international attention since the United Nations Conference on Environment and Development (the 'Earth Summit') held in Rio de Janeiro in June 1992. In many quarters it may be assumed that scientific developments and governmental policy formation are critical to the task of conserving the environment and maintaining biological diversity. Writers both overseas and here have pointed out, however, that TEK may already provide many of the urgently required solutions if only indigenous peoples are empowered to continue to fulfil their customary role in relation to the fragile ecosystems we now seek to keep intact. The hearing of the Wai 262 claim provides an opportunity for the government of this country to assess the extent of its commitments to biological diversity and to recognise the importance of the TEK of Maori as kaitiaki in meeting the commitments of the international community as expressed in the Rio Declaration, the Convention on Biological Diversity and other international instruments to be discussed in the next chapter. In the area of intellectual property law reform, the difficulty for Maori (and other indigenous peoples) is that if they stand firm and insist that they have 'full ownership' and patentability over indigenous resources, they are denying the wisdom of their own ancestors that resources are not 'owned' by people and they will be attacked for claiming an exclusive proprietary right which may 'lock up genetic resources'.¹⁶ On the other hand, if they do nothing to protect their knowledge, then it will remain as prey for multinational companies, research institutes and others who know nothing of and usually totally disregard the intricate relationships involved in matauranga Maori and TEK elsewhere. This perplexing conundrum highlights the importance of the Waitangi Tribunal finding ways and means to facilitate the restoration to Maori of kaitiakitanga responsibilities and to recommend measures which enable hapu and iwi to carry out such responsibilities on their own terms and in their own way.

16. J Robertson and D Calhoun, *Ownership Issues and Access to Genetic Materials*, 1994, p 2 (paper submitted for publication in the *European Intellectual Property Reports*)