Title importance of recording local knowledge about edible insects in Australia

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Victoria
The Place To Be

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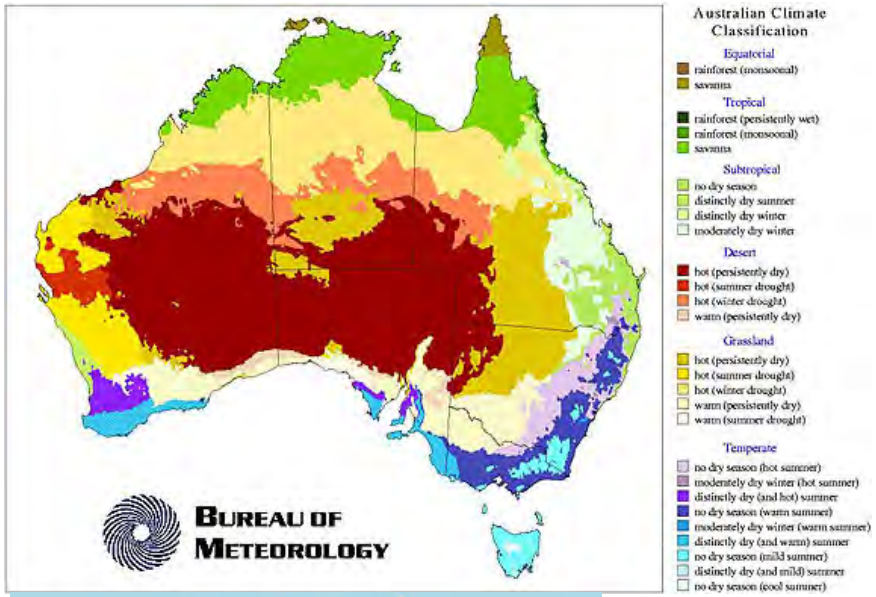
Introduction to Australia & settlement

- Geologically a very old continent
- Very low nutrient soils & unpredictable rainfall
- Large continent with enormous geographical differences
- Settled by Aborigines 60,000 yrs ago?
- European settlement over 200 yrs ago



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Aboriginal traditional foods: belief

- Deemed to be predominantly hunter-gatherers
  - Variable & harsh environment
  - Presumably low populations
  - Did not practice “conventional” agriculture or animal husbandry
- Hunted larger animals & supplemented by smaller animals (including insects) and seeds ground into flour

Aboriginal traditional foods: reality

- Early observations on Aboriginal foods biased by European beliefs on what constituted food and food production systems
- Early observations primarily by men
- Role of Aboriginal women under-estimated
- Enormous geographical variation in foods & wide range of plant & animal foods
- Seasonal food calendars






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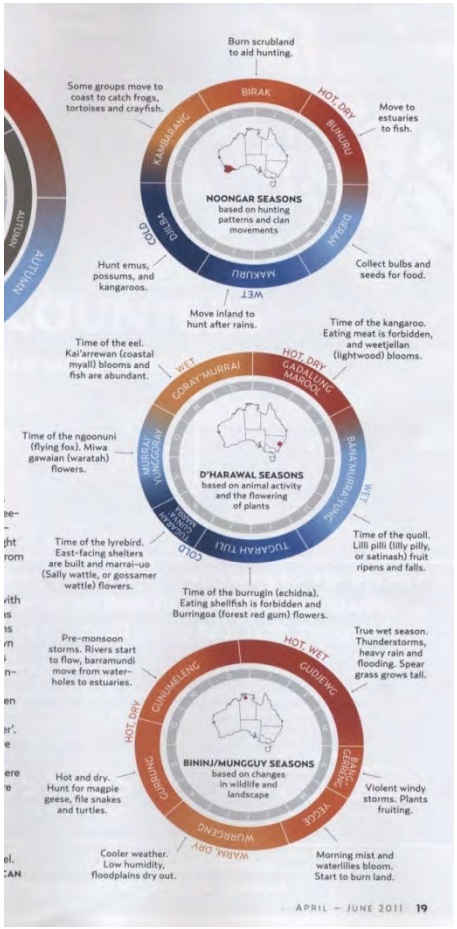
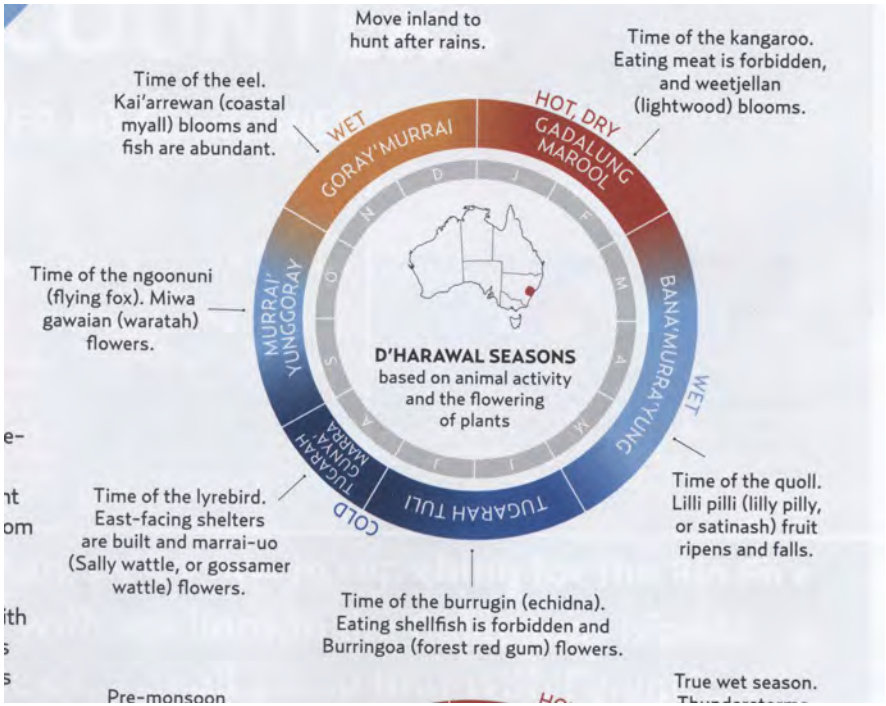
Seasonal food calendars

Varied geographically





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Aboriginal food sources

- Hunter-gatherer important
- Not all nomads - some forms of settlement
- Some production systems
  - Firestick farming
  - Eel traps
  - Bardi grubs (similar to palm weevils cultivation)
- Some food preservation & storage
- Extensive trade across Australia

Use of insect foods by Australian Aborigines

- Fragmented information
- Biased by negative European attitude towards insects
- Most observations by anthropologists without entomological knowledge
- Lack of reference material – compounded by different Aboriginal languages
- Geographical differences in use of insects, crustaceans and molluscs
  - Insects more arid & temperate
  - Shellfish coastal sub-tropical & temperate

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Knowledge gaps

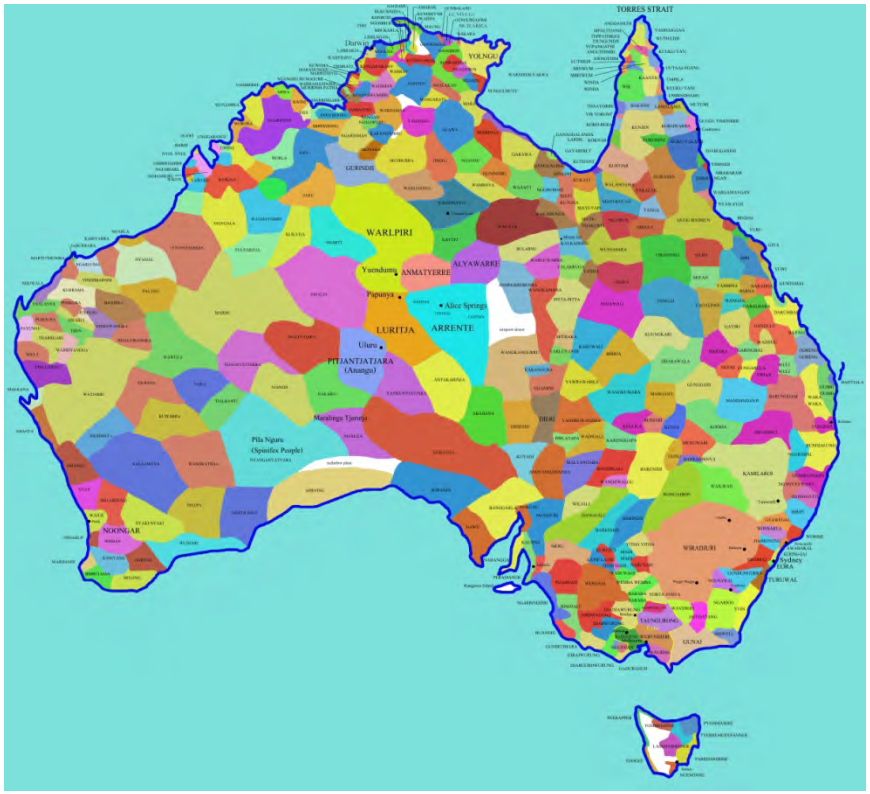
- Lots of currently under-utilised traditional Aboriginal foods
- Importance of documenting food for current & future use:
  - Sustainability (wild harvesting)
  - Potential for semi-domestication
- Macadamia is an endemic Australian plant (but adopted internationally after planting in Hawaii)

Why is it important to address gaps?

- Increased interest in traditional Australian foods - Australian food identity
- Commercial enterprises: ecotourism & restaurants
- Maintain Aboriginal traditions
- Traditional Aboriginal food source for Aboriginal health
- Main Australian food production systems based on exotic species with adverse environmental issues

Aboriginal diversity

- Aboriginal “nations” (language groups) adds complexity (but also diversity)
- Aboriginal languages are purely oral (stories, songs and dances) – any non-oral information is through art and artefacts
- Hence oral traditions are vital to culture



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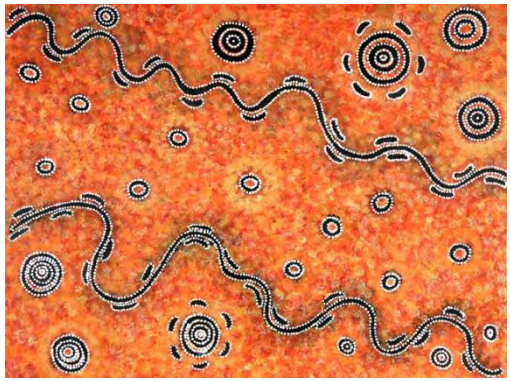
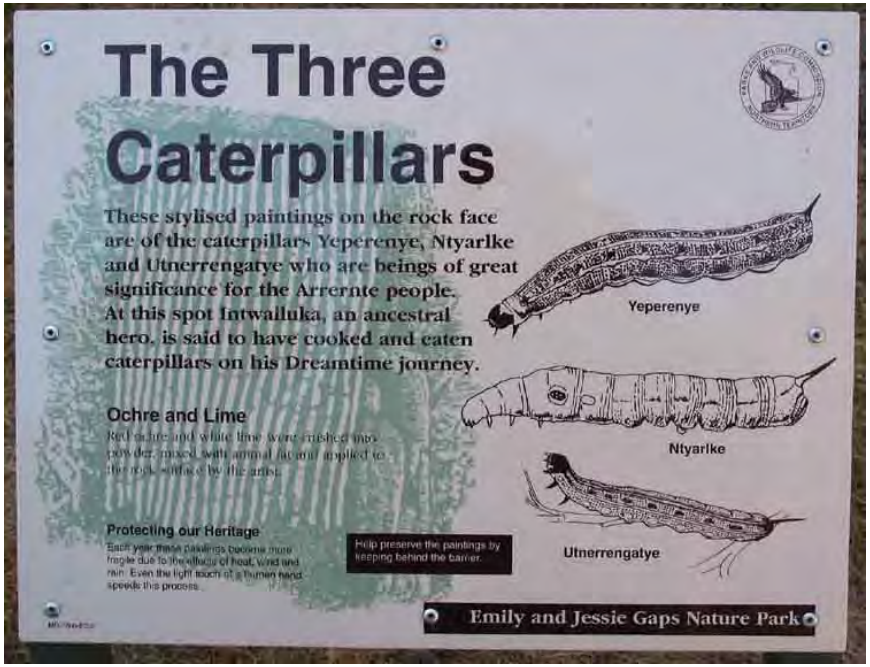
Importance of myth & ritual

- Dreaming traditions
- Aborigines arose out of the land and therefore are part of the land
- Importance of looking after the land (country) for health
- Totemic relationships
- Increase ceremonies
- Sacred knowledge



The three ancestral caterpillars of Alice Springs



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The Emily Gap witjuti grub site

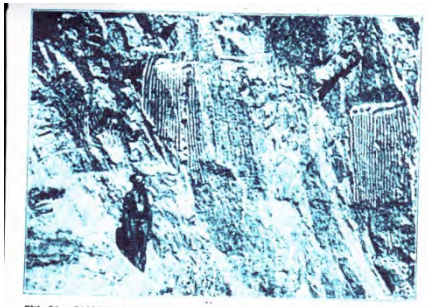

FIG. 24.—SACRED DRAWINGS OF THE WITCHETTY GRUB TOTEM ON THE ROCKS AT THE EMILY GAP.

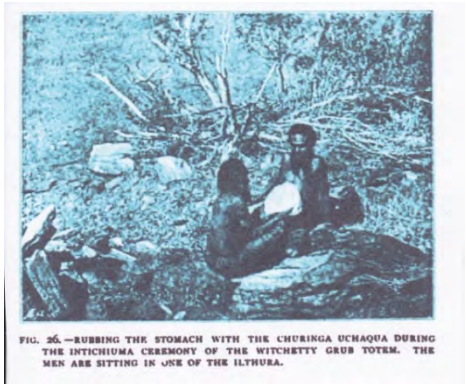

FIG. 26.—RUBBING THE STOMACH WITH THE CHURINGA UCHAQUA DURING THE INTICHIUMA CEREMONY OF THE WITCHETTY GRUB TOTEM. THE MEN ARE SITTING IN ONE OF THE ILTHURA.

FIG. 27.—RUBBING THE STOMACH WITH THE CHURINGA UNCHIMA DURING THE INTICHIUMA CEREMONY OF THE WITCHETTY GRUB TOTEM. THE MEN ARE SITTING IN ONE OF THE ILTHURA.

FIG. 28.—THE ALATUNJA RETURNING TO CAMP AFTER THE INTICHIUMA CEREMONY OF THE WITCHETTY GRUB TOTEM AT THE EMILY GAP.

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Bogong moths: overcoming prejudice

- Bogongs moths were used as a summer food in southeastern Australian alps
- Eaten roasted or made into “cakes” for storage
- Important source of fats
- Important social significance
- Considered an agricultural & an amenity pest

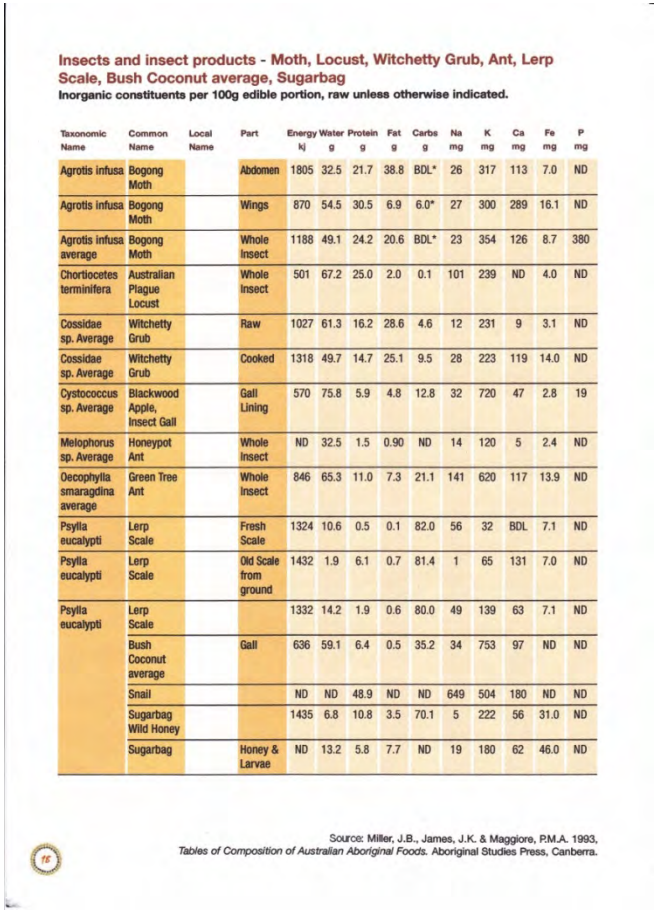
Desert truffles: art & food

Painting by Aboriginal artist Betsy Napangardi Lewis

- The circles on the left are desert truffles; blue areas are waterholes. The concentric circles on the right represent a claypan where the Napanangka Napangardi women danced and performed ceremonies
- The U-shapes are women with their digging sticks.
- Surveys to establish small desert truffle industry for local Aborigines has resulted in discovery of new species
- What is the unknown diversity of edible insects?

Health = healthy land – traditional foods

- Major health issues with Aborigines on “settlement” diets – obesity, diabetes, cardiovascular disease, alcohol
- Rapid improvement in health when returned to traditional foods – combination of diet and activity



Insects and insect products - Moth, Locust, Witchetty Grub, Ant, Lerp Scale, Bush Coconut average, Sugarbag

Inorganic constituents per 100g edible portion, raw unless otherwise indicated.

Taxonomic Name	Common Name	Local Name	Part	Energy kj	Water g	Protein g	Fat g	Carbs g	Na mg	K mg	Ca mg	Fe mg	P mg
Agrotis infusa	Bogong Moth		Abdomen	1805	32.5	21.7	38.8	BDL*	26	317	113	7.0	ND
Agrotis infusa	Bogong Moth		Wings	870	54.5	30.5	6.9	6.0*	27	300	289	16.1	ND
Agrotis infusa average	Bogong Moth		Whole Insect	1188	49.1	24.2	20.6	BDL*	23	354	126	8.7	380
Chortiocetes terminifera	Australian Plague Locust		Whole Insect	501	67.2	25.0	2.0	0.1	101	239	ND	4.0	ND
Cossidae sp. Average	Witchetty Grub		Raw	1027	61.3	16.2	28.6	4.6	12	231	9	3.1	ND
Cossidae sp. Average	Witchetty Grub		Cooked	1318	49.7	14.7	25.1	9.5	28	223	119	14.0	ND
Cystococcus sp. Average	Blackwood Apple, Insect Gall		Gall Lining	570	75.8	5.9	4.8	12.8	32	720	47	2.8	19
Melophorus sp. Average	Honeypot Ant		Whole Insect	ND	32.5	1.5	0.90	ND	14	120	5	2.4	ND
Oecophylla smaragdina average	Green Tree Ant		Whole Insect	846	65.3	11.0	7.3	21.1	141	620	117	13.9	ND
Psylla eucalypti	Lerp Scale		Fresh Scale	1324	10.6	0.5	0.1	82.0	56	32	BDL	7.1	ND
Psylla eucalypti	Lerp Scale		Old Scale from ground	1432	1.9	6.1	0.7	81.4	1	65	131	7.0	ND
Psylla eucalypti	Lerp Scale			1332	14.2	1.9	0.6	80.0	49	139	63	7.1	ND
	Bush Coconut average		Gall	636	59.1	6.4	0.5	35.2	34	753	97	ND	ND
	Snail			ND	ND	48.9	ND	ND	649	504	180	ND	ND
	Sugarbag Wild Honey			1435	6.8	10.8	3.5	70.1	5	222	56	31.0	ND
	Sugarbag		Honey & Larvae	ND	13.2	5.8	7.7	ND	19	180	62	46.0	ND

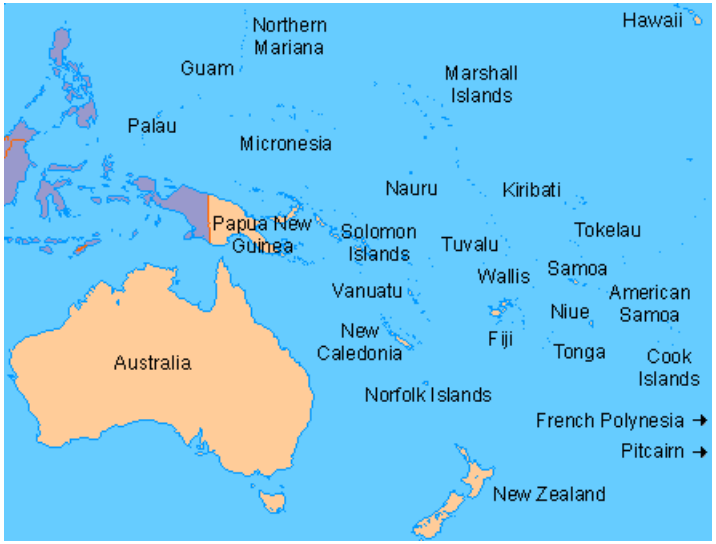
Source: Miller, J.B., James, J.K. & Maggiore, P.M.A. 1993, *Tables of Composition of Australian Aboriginal Foods.* Aboriginal Studies Press, Canberra.

Molluscs – another invertebrate food

- Coastal Aborigines ate lots of shellfish as evidenced by shell middens
- Reduced use in parts of Australia
- Abalone – export market
- Asian migrants – increased use

Oceania – similar issues

- Insects used as food in Papua New Guinea
- Historically used in Pacific Islands
- Eastern Indonesia – extent unknown
- *Placostylus* issues
- Need to document information for sustainability & semi-domestication



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The future

- Insects are an under-utilised food resource in Australia

- Important for Australian Aborigines for social traditions and for health

- Need to document information on diversity of edible insects while knowledge is still available
  - Diversity of species - Identify edible insects (invertebrates) using both traditional Aboriginal names & western scientific names
  - Sustainable harvesting protocols

- Dialogue on traditional knowledge, sacred knowledge & potential to semi-domesticate some species using Aboriginal and western technology

Wayanu, Maku Munu Tjala Ngalkuningi

Makinti Minutjukurku tjukurpa

Nyangatja mai tjutanguru. Tjana iriti nyinapai, iriti mulapa. Munu tjana mai pulawaku ngurpa nyinangi. Munuya mai nyangangku wayanu munuya maku ngalkuningi. Munuya tjala urani ngalkuningi. Tjana nyaa palunya tjananya pururnypa.

Ka minyma tjutangku uralpai wayanu pulka pitingka- ka nyangatja piti kutjarangka wayanu piruku ankula. Munuya piruku ankula tjalaku tjintu kutju, tjintu kutjupa makuku. Munu tjana pukulpa nyinapai.

Mai nyanga palunya, maku nyanga palunya, tjala nyanga palunya ngalkula - ngalkula munuya ungkupai tjitji, katja, untalpa. Ka paluru tjana pulkaringangi munu kanpi pulka nyinangi mai nyanga ngalkulampa pukulpa. Pikatjara wiya. Uwa palya.

Eating Quandongs, Witchetty Grubs And Honey Ants

By Makinti Minutjukur

This painting is about plant and animal foods. Long ago, really long ago, our ancestors lived here. They didn't know about flour. They ate quandongs and witchetty grubs, and collected honey ants.

Women used to gather heaps of quandongs into a wooden dish. Two wooden bowls, with which they're going back to get more quandongs, are represented. One day they would go for honey ants and another day for witchetty grubs. Women were quite healthy.

This kind of food – quandongs, witchetty grubs and honey ants – they ate often. They also gave these foods to the children, sons and daughters, who fattened and grew. They weren't sick then.

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