

Soup for crowds : a new source of data on insect richness, diversity and abundance

Paul Flemons¹ and Beth Mantle²

1. Australian Museum, Sydney, Australia

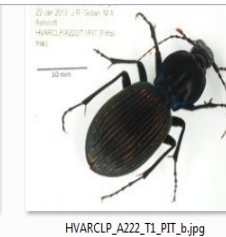
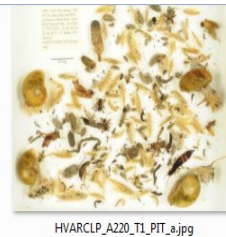
2. Australian National Insect Collection, CSIRO Ecosystem Sciences, Canberra, Australia

nature culture **discover**



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Patterns immediately obvious



Insect Soups



Systematic

Insect Soups Images



Richness diversity abundance

specific time and location.

Insect Soups Images



Comparisons across time and
space

Insect Soups Images



Measures of richness and diversity are routinely used in research and planning.

Insect Soups Images



Crowdsourcing could provide a means of extracting measures of richness, abundance and diversity from these “insect soups

Insect Soups Images



How could we do that?

Step 2: Build a website where volunteers capture the patterns

- Group “like” insects
- Tag
- Extract image
- Count



Store in database



Select	Symbol	Image	Class (Key)	Order (Key)	Sub-Order (Keys for each Order)	Family (Keys for each Orders)	Genus (Keys for each Family)	Count	Body	Wings	Legs	Colour
			Insecta	Coleoptera	unknown	unknown	unknown	1	2 cm Thorax divided from abdomen	unknown	unknown	Black
			Insecta	Diptera	unknown	unknown	unknown	4	3cm, long hairs: 3mm	2cm, clear with brown pattern	Thin, long, 3cm	Metallic green
			Insecta	Coleoptera		unknown		3				
			Insecta	Diptera		unknown		1				
			unknown	unknown		unknown		1				

[Add Species](#)

Virtual collections of insects
can be created from the
extracted images

Data Mining and Discovery



Metadata tags could be used to mine like images to explore a whole range of questions

6legs 8legs black blue bue chewing
nowings red **sucking** wings

Data Mining and Discovery



Exciting possibilities for
researchers and enthusiasts alike:

- discovering new species?
- range extensions?
- new distribution information?

Other Applications



other systematic and taxonomy related
related applications?

NSW Under tall shrubs, 30m off
Birdie Beach Drive and 200m
north of Freemans, Munmorah
State Conservation Area -
33 20457 S, 151 60249 E, 12
Jan 2012 to 22 Jan 2012 J.R.
Gollan, M.A. Ashcroft
HVARCLP/A247/T1/PIT [Pitfall
trap]

10 mm









Some Issues with Image Capture



Soup imaging workflow

making it efficient

Dirty soups

Crowded soups





Some other issues



Image tagging and management
controlled vocabulary for tagging?

Collection Management
loans
removal of insects from soups

Virtual Collection Management
how might that work
updating images as they have species identified

The Challenge



Set aside our prejudices about what can and cannot be done with “insect soups” and crowdsourcing and build communities that can help us mine this rich source of data.



Bulk sample
ANIC 3669

Melaleuca TAS
nr Bathurst Harbour
43°25'S 146°10'E
18-21 February 1991
A Calder & W Dressler
sweeping *Leptospermum*
flowers

Thank you

www.australianmuseum.net.au

nature culture **discover**

