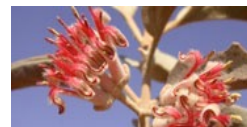


Flora and vegetation surveys for EIA ...in the real world

Garth Humphreys



Profile

Botany/Zoology degree from UWA

28 years of fauna and flora survey and impact assessment projects, mostly in Western Australia

Principal Ecologist/Director of Biota Environmental Sciences

Biota specialises in flora, fauna and ecological assessments for proposed developments: www.biota.net.au



Legislative and policy expectations

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Policy framework within Western Australia comprehensive and the product of long term development and regulatory investment

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- ▶ Regulations and requirements of the *Biodiversity Conservation Act 2016*



Technical Guidance Flora and Vegetation Surveys for Environmental Impact Assessment



Environmental Protection Authority
December 2016

Western Australia

Biodiversity Conservation Act 2016

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As at 03 Dec 2016 Version 00-d-06
Extracted from www.slp.wa.gov.au, see that website for further information page i

But, how do we ensure what is actually being undertaken is reliable, and adequate to truly meet these expectations and provide EPA with robust inputs for EIA?

Challenges for botanists in delivering sound assessments

Proponent expectations

Properly understanding the expectations of regulators and full requirements of legislation and relevant policy

The realities of field work - and the many ways in which survey adequacy can be impacted

Important factors to address after the survey

Commercial pressures on consultant botanists

Fuller assessment and understanding of impacts on flora and vegetation



Proponent expectations

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Can vary significantly, often with the size of the organisation and in-house personnel - a broad generalisation:

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Understanding





Limited



Well
informed

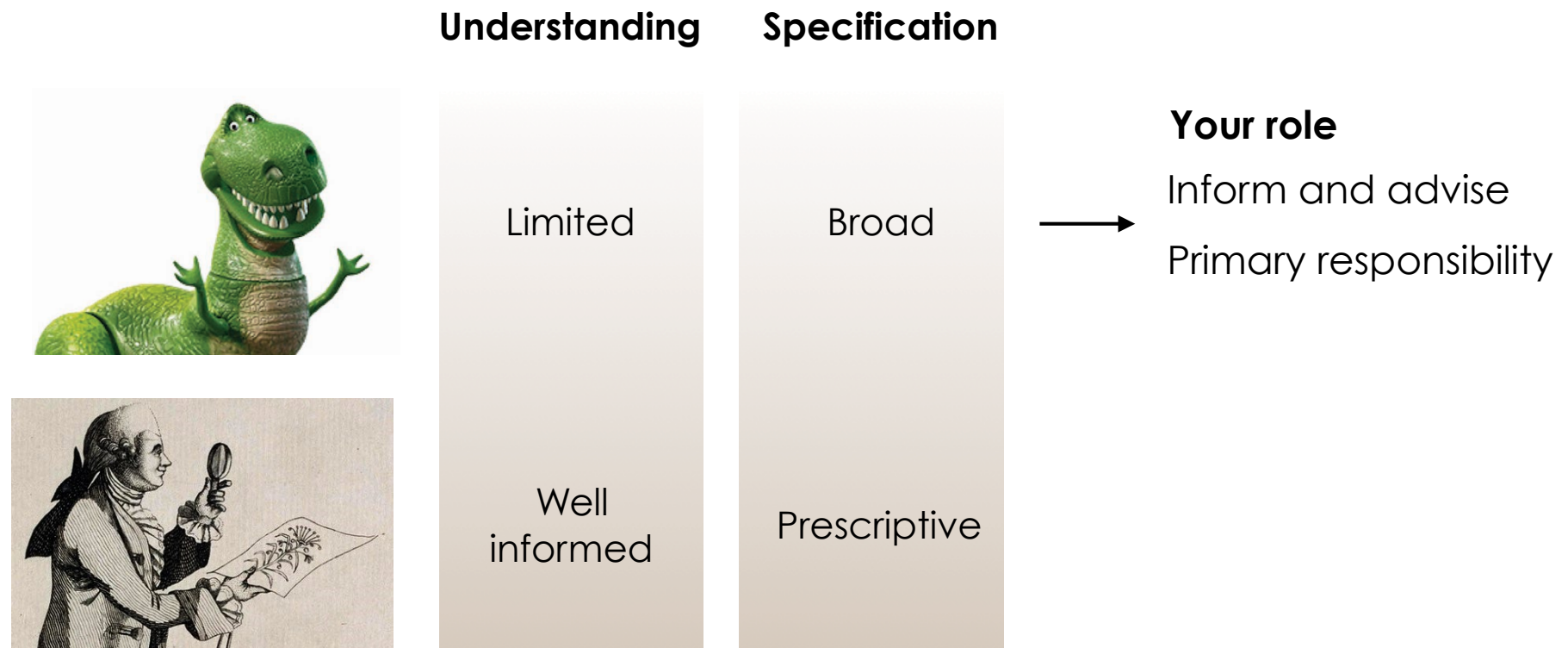
Proponent expectations

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	Understanding	Specification
	Limited	Broad
	Well informed	Prescriptive

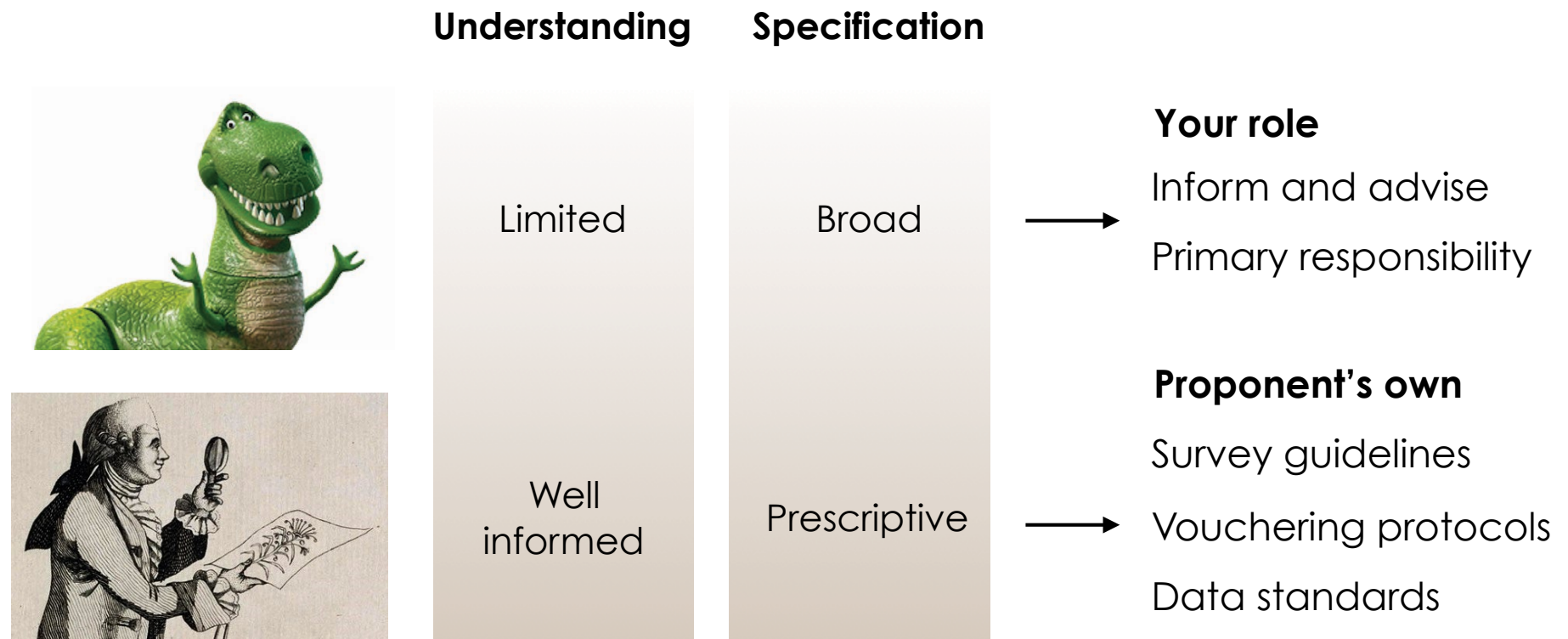
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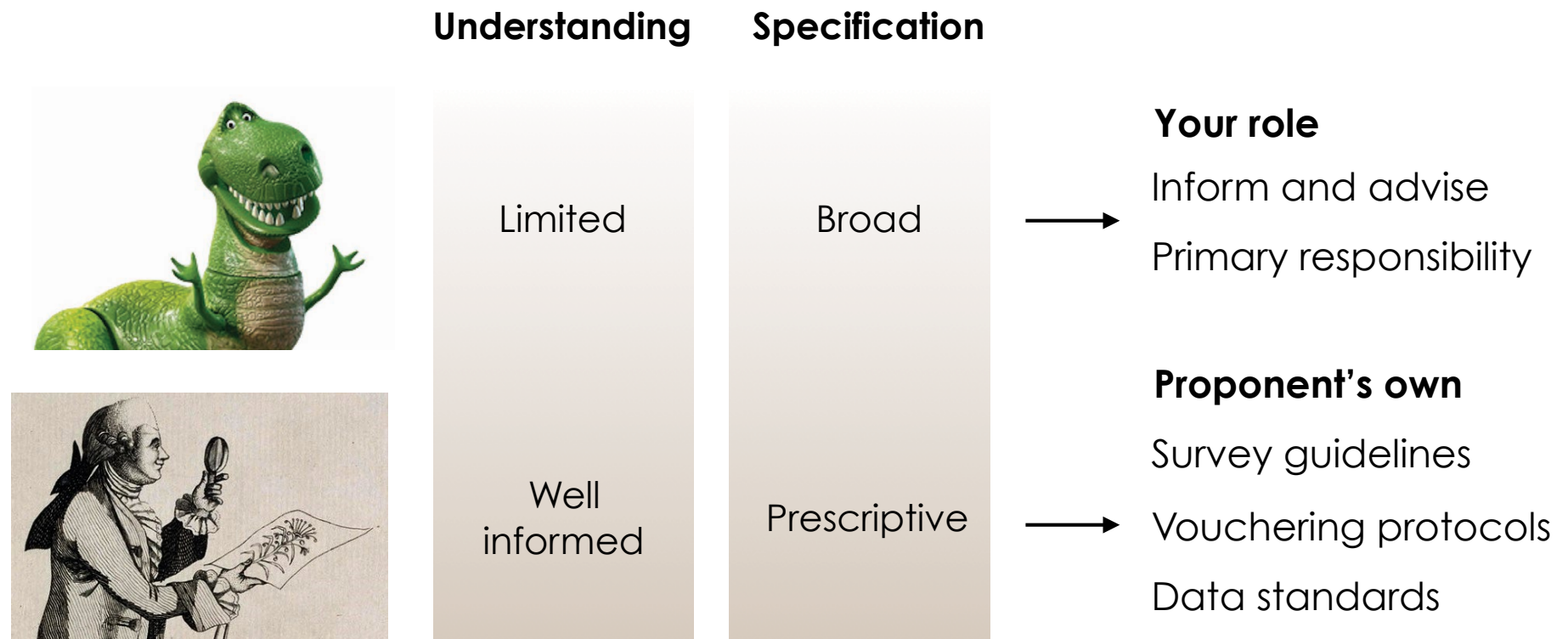
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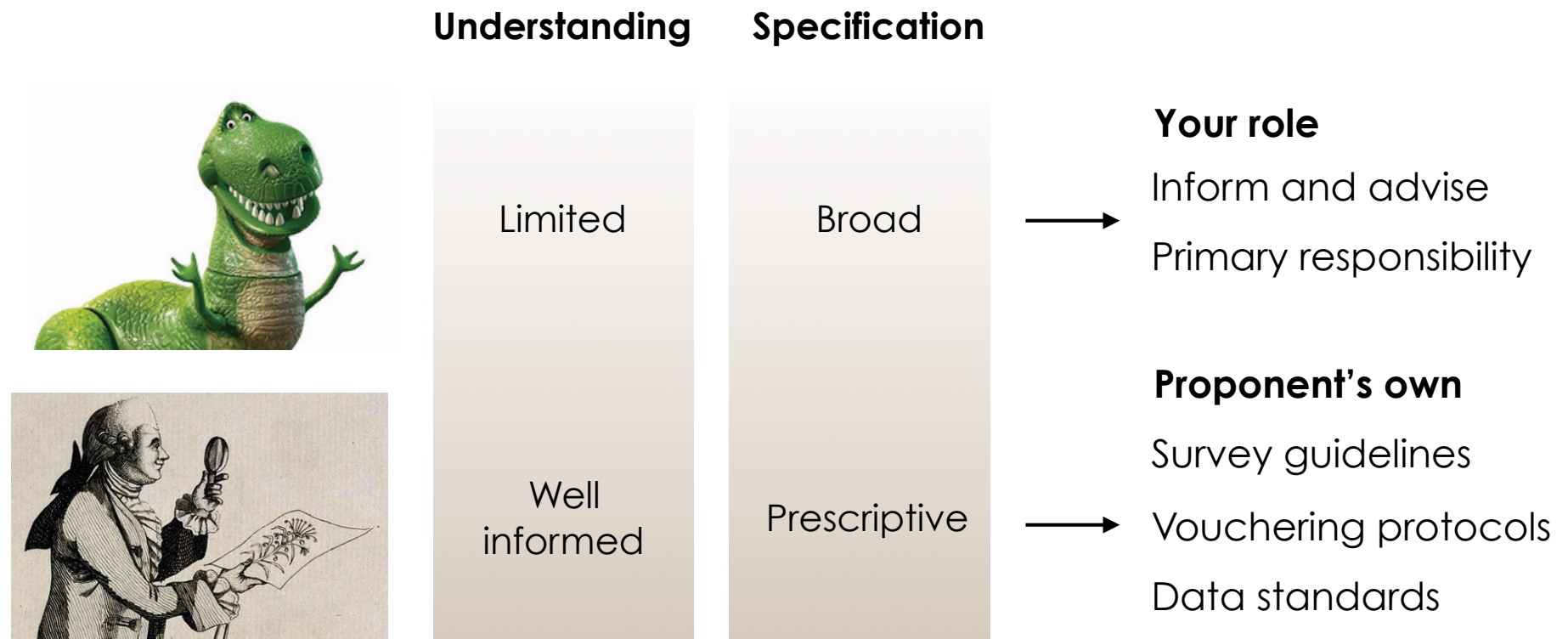
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Critically review what is being asked for - will it meet regulator expectations?

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Critically review what is being asked for - will it meet regulator expectations?

A common proponent expectation: "Value for money"

Proponent timing

Surveys out of optimal season

Deliverables timeframes too tight

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More likely



Less likely

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Season

Advise on requirements for
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If cannot delay, then what is
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Advise on requirements for adequate survey

If cannot delay, then what is needed to supplement limitations?

Delivery timing

Provide feedback on what is realistically needed

Identify risks of not extending timeframes



Understanding what's really required

Thoroughly read and understand current guidance and regulations

If you are not certain, seek advice from a more experienced practitioner

Consult with the regulators to confirm requirements specific to your survey

If you are not familiar with the bioregion or locality - do your research and apply the guidance from that framework

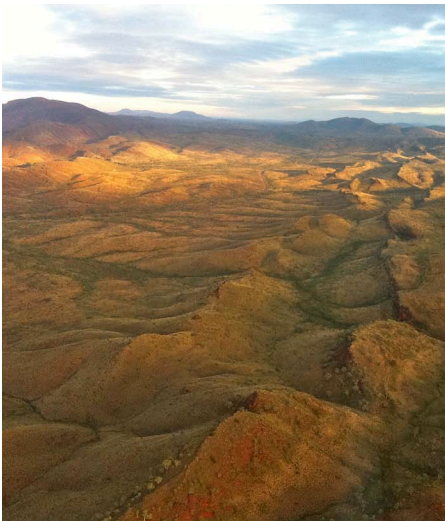
Realistically appraise the likely diversity of the vegetation present, existing data, and floristic diversity to design your survey and the sampling effort needed



Realities of the field

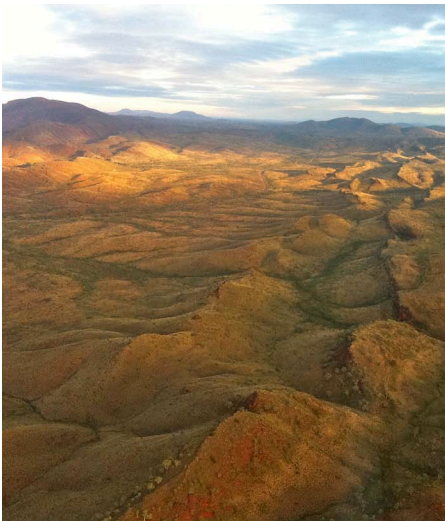


Realities of the field



Scale

Realities of the field

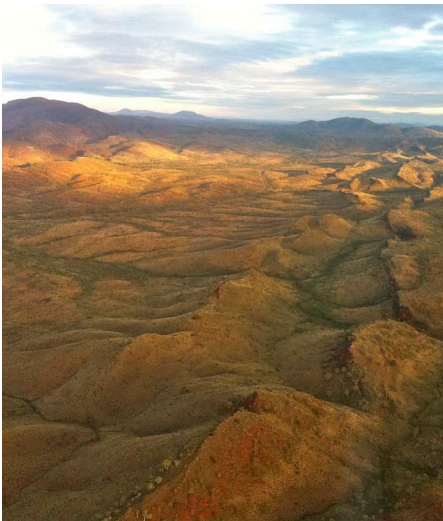


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Access

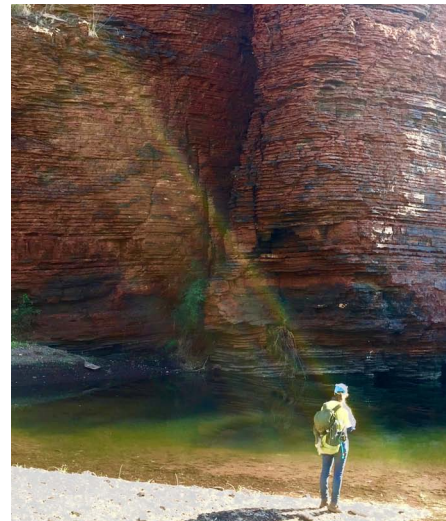
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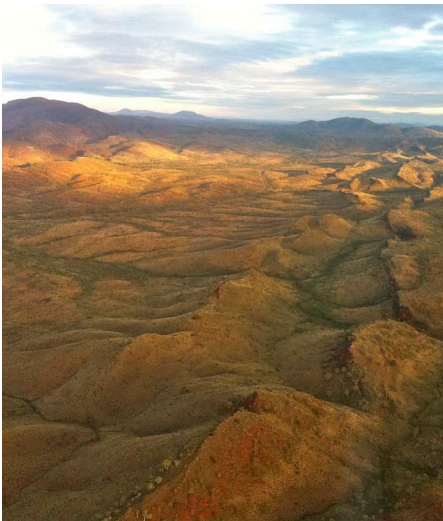


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Weather

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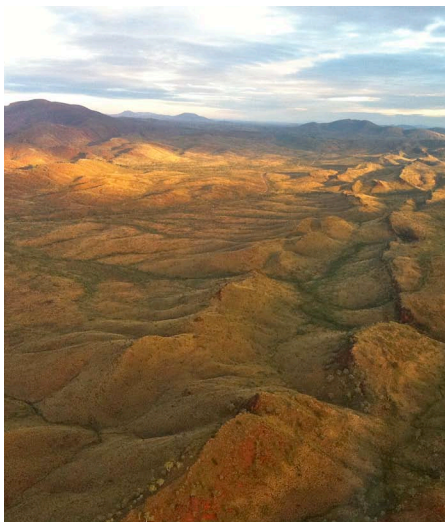


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Weather

Realities of the field



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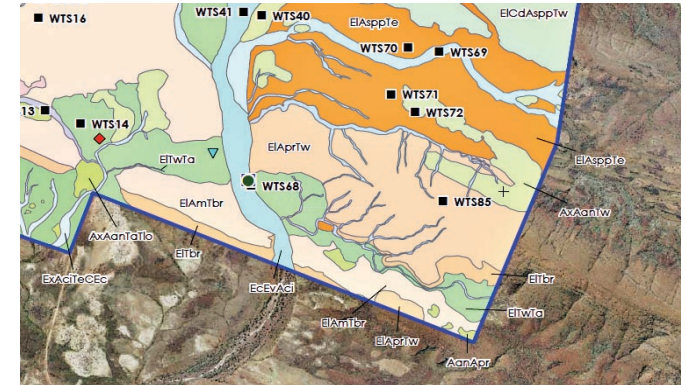


Safety

Field skills

Field skills

How adequately can you delineate the vegetation types?

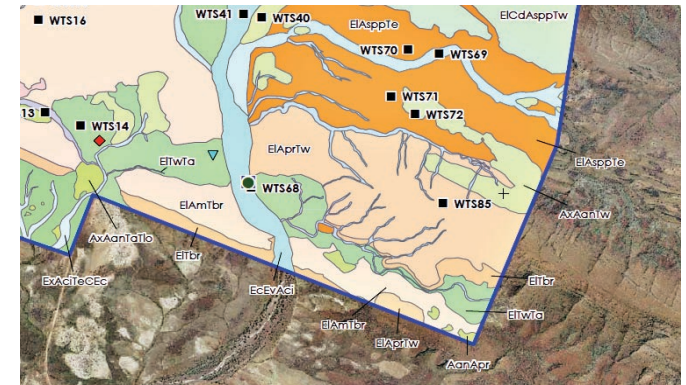


Field skills

How adequately can you delineate the vegetation types?

- ▶ Key driver of required quadrat sampling effort
- ▶ Fundamental to later impact assessment

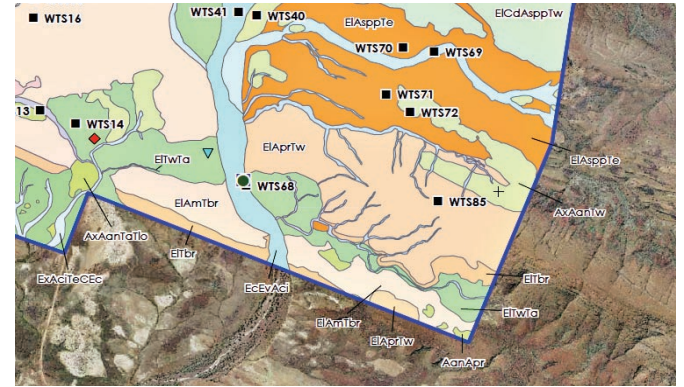
Be realistic about how well you know the flora



Field skills

How adequately can you delineate the vegetation types?

- ▶ Key driver of required quadrat sampling effort
- ▶ Fundamental to later impact assessment



Be realistic about how well you know the flora

- ▶ Devote sufficient time to adequately sample each quadrat
- ▶ Keep an open mind and be precautionary in collecting
- ▶ Understand the habitat preference of taxa of conservation significance



Key considerations after the field work



Key considerations after the field work

Data and mapping note
management

Specimen tracking and management



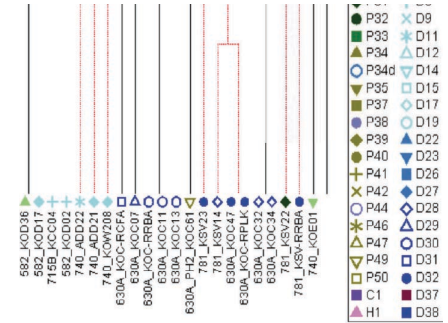
Key considerations after the field work

Data and mapping note management

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Quality of specimen identifications

Floristic analysis



Key considerations after the field work

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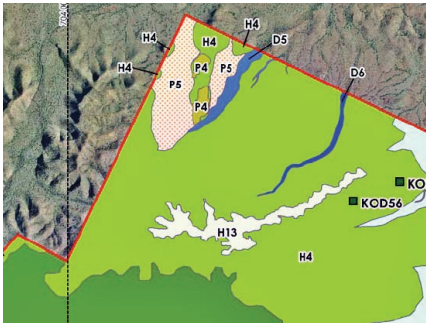
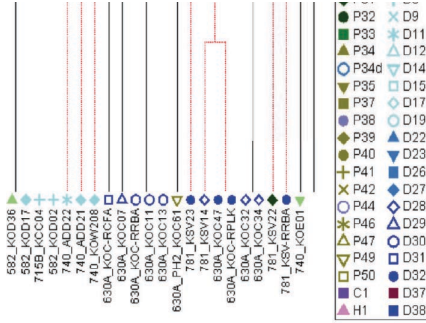
Specimen tracking and management

Quality of specimen identifications

Floristic analysis

Quality of vegetation mapping

High standard of data QA and documentation



Species	Eastings	Northings	No. Individuals
<i>Eremophila magnifica</i> subsp. <i>velutina</i>	557522	7494430	70
<i>Eremophila magnifica</i> subsp. <i>velutina</i>	557543	7494424	8
<i>Eremophila magnifica</i> subsp. <i>velutina</i>	557544	7492559	10
<i>Eremophila magnifica</i> subsp. <i>velutina</i>	557559	7494426	2
<i>Eremophila magnifica</i> subsp. <i>velutina</i>	557577	7494429	5
<i>Eremophila magnifica</i> subsp. <i>velutina</i>	557621	7494440	1
<i>Eremophila magnifica</i> subsp. <i>velutina</i>	558051	7492880	2
<i>Eremophila magnifica</i> subsp. <i>velutina</i>	558057	7492744	1
<i>Eremophila magnifica</i> subsp. <i>velutina</i>	558057	7492890	1
<i>Eremophila magnifica</i> subsp. <i>velutina</i>	558070	7492754	1
<i>Eremophila magnifica</i> subsp. <i>velutina</i>	558079	7492910	2
<i>Eremophila magnifica</i> subsp. <i>velutina</i>	558091	7492740	1
<i>Eremophila magnifica</i> subsp. <i>velutina</i>	558104	7492710	11
<i>Eremophila magnifica</i> subsp. <i>velutina</i>	558105	7492701	1
<i>Eremophila magnifica</i> subsp. <i>velutina</i>	558113	7492915	20
<i>Eremophila magnifica</i> subsp. <i>velutina</i>	558115	7492904	4
<i>Eremophila magnifica</i> subsp. <i>velutina</i>	558119	7492693	1
<i>Eremophila magnifica</i> subsp. <i>velutina</i>	558125	7492931	11
<i>Eremophila magnifica</i> subsp. <i>velutina</i>	558130	7492941	60
<i>Eremophila magnifica</i> subsp. <i>velutina</i>	558131	7492915	50
<i>Eremophila magnifica</i> subsp. <i>velutina</i>	558140	7492662	2
<i>Eremophila magnifica</i> subsp. <i>velutina</i>	558253	7493147	70



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- ▶ landscape level (vegetation types lumped that should have been sampled separately)



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So for botanical consultants as an industry...?

Resist temptation or pressure to under-scope requirements

Still primarily sampling with an 'inventory focus' – critical to sound EIA but tells us little about ecological process or impact pathways

Support and improve on data sharing initiatives - needed for contextual analyses and cumulative impact assessments

Many highly motivated people working in the field who genuinely want to meet the EPA's requirements for high reliability information

