

CPSG Wildlife Disease Risk Analysis Online Training Course Structure and Content

VISION

The Wildlife Disease Risk Analysis (WDRA) course and associated resource library are easily accessible, free of charge and used globally for the investigation and management of health risks associated with wildlife.

MISSION

To enable all trainees to conduct a robust, evidence-based disease risk analysis for any situation involving disease impacts on wildlife and impacts on people or domestic animals in contact with wildlife.

LEARNING OUTCOMES

After completing this course, you will:

1. Understand the epidemiological basis of WDRA within a One Health framework.
2. Be familiar with the value and range of applications of WDRA.
3. Have drafted a WDRA of relevance to your work.
4. Be aware of potential constraints on conducting a WDRA and how to select an approach suited to a range of situations.
5. Have the opportunity to continue to connect with WDRA practitioners to progress and share your learning.

Course length: 10 weeks (full course) or 2 weeks (contracted course, Modules 1, 9, 10).

Course quota: 15 – 25, dependent on available teaching resources.

Course frequency: Twice yearly?

Description and content

Will describe course structure, time commitment, learning outcomes, navigation, resources (including use of and contribution to online library), software requirements, registration, feedback/evaluation, eligibility, working agreement/online training etiquette.

REGISTRATION AND PRE-COURSE TASKS

- Complete online registration form noting:
 - **Eligibility criteria:** First priority will be given to professionals (i.e. veterinarians, epidemiologists, disease ecologists, One Health practitioners, wildlife managers and other with good familiarity of disease) able, within a six month period, to apply the training. A 3 week contracted course for senior policy and decision makers is offered introducing the IUCN/OIE WDRA Guidelines and describing the process, range of applications and potential environmental, social and economic benefits for consideration when planning projects with environmental and potential human, domestic animals or wildlife health impacts.
- Review web-based course description.
- Link to Survey Monkey baseline DRA competency self-assessment – to be re-visited at end of course. (15 minutes)

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- Link to personality preference tool such as <https://www.colorcode.com> (15 minutes)
- Download and review DRA Worksheet template (Word document) with instructions on use.
- Submit the outline of a personal DRA case study to apply course training outputs for documentation in the DRA Worksheet. Trainer review and feedback.

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MODULE 1: INTRODUCTION TO DISEASE RISK ANALYSIS

Learning Outcomes

- Understand and explain core concepts and the role of DRA in conserving wildlife and biodiversity and in improving the health of people, domestic animals and wildlife.
- Explain the steps in a DRA process
- Understand the key expertise required and the key stakeholders who need to be involved in a DRA process.
- Be able to identify situations where a DRA is needed.
- Aware of range of DRA applications (including biodiversity conservation, public health, domestic animal health)
- Be able to discuss pros/cons of DRA vs alternative approaches.
- Understand the difference between qualitative vs quantitative analysis and discuss pros and cons of each
- Aware of DRA tools and resources to help tool selection

Content	Delivery	Resources	To do
<ul style="list-style-type: none"> • Definitions • Core concepts • DRA steps • Different types/levels of DRA according to the situation at hand • National frameworks and legislation • Resources required for a DRA 	<ul style="list-style-type: none"> • Introductory film/infographic? • Reading materials: IUCN/OIE Guidelines & first section of the Manual • DRA library/examples 	<p>IUCN/OIE Guidelines & first section of the Manual</p> <p>Glossary in Manual.</p>	<p>Script for infographic/film – must be engaging and high quality (\$\$\$) - usable for course marketing – check out OIE resources – they have some good videos now.</p> <p>PDF copy of first section of manual for upload. (Guidelines already available as PDF).</p> <p>Design library framework and search capability.</p>

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<ul style="list-style-type: none"> On-line self-knowledge check on these topics 	<ul style="list-style-type: none"> Short answer/multiple choice questionnaire 		Develop questionnaire
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MODULE 2: EPIDEMIOLOGY AND ONE HEALTH

- Explain measures of disease in populations (e.g. incidence versus prevalence);
- Describe and understand the factors that influence disease in individuals and in populations;
- Be able to apply causal models to the system of interest.
- Explain measures of disease in populations (e.g. incidence versus prevalence);
- Describe and understand the factors that influence disease in individuals and in populations;
- Be able to apply causal models to the system of interest.
- Understand drivers of disease emergence and shifting nature of this.
- Recognize and include factors that might influence the system (e.g. climate change, changing land-use, agriculture)
- Describe and understand the concept of ONE HEALTH (human-environment disease interfaces, how each system affects the other, co-dependency of these systems).
- Be able to choose good data sources to provide information for DRA
- Ability to apply epidemiological and One Health principles to the system of interest.

Content	Delivery	Resources	To do
<ul style="list-style-type: none"> Measures of disease. Factors that influence disease. Diagnostic tests - sensitivity, specificity, validation. Causal models. 	On-line reading materials plus on-line exercises (question answer plus do one causal diagram using e.g. Dagitty – www.dagitty.net)	Powerpoints that cover some of this material from RJH, Steve Unwin, others?	<ul style="list-style-type: none"> Identify reading materials and make sure they can be made available Identify/coerce someone to do an interactive case-study Flesh out the other learning activities

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<ul style="list-style-type: none"> Monitoring and surveillance. 			<ul style="list-style-type: none"> Could use assignment to indicate competency Could consider a mentoring process – students will be isolated Consider connecting people to other local participants (national/regional)
Content	Delivery	Resources	To do
<ul style="list-style-type: none"> Measures of disease. Factors that influence disease. Diagnostic tests - sensitivity, specificity, validation. Causal models. Monitoring and surveillance. 	On-line reading materials plus on-line exercises (question answer plus do one causal diagram using e.g. Dagitty – www.dagitty.net)	Glossary: DRA Manual, OIE, D.O. Pfeiffer intro to vet. epidemiology; Manual Appendix 3, pp 97-102; existing ppt presentations	Review resources, ID gaps and compile.
<ul style="list-style-type: none"> Definition of disease emergence Drivers 	On-line reading materials plus on-line exercises Case study (possibly live and interactive) Discussion boards		Source and compile delivery materials.

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Content	Delivery	Resources	To do
<p>Definition of One Health. Interactions and interfaces.</p>	<p>TED talk by Sharon Deem: The ties that bind us: One Health (15.35)</p>	<p>Some FAO/WHO/OIE Barrett & Osofsky One Health book chapter. materials but possible gap is a good basic resource. One Health Commission (distributes a lot of material for free but some has to be paid for).</p>	<p>Source and compile delivery materials. Contact Sharon Deem for permission/input.</p>
<p>Data repositories. Search terms.</p>	<p>Presentation/materials from some of the data sources. Self-directed learning activity.</p>	<p>OIE WAHID; FAO EMPRESS Wildlife Health Australia databases (permission required) Species360 databases</p>	<p>Source and compile delivery materials.</p>
<p>Worked examples</p>	<p>Presentation of individual case studies including the elements learned.</p>	<p>www.CPSG .org documents library US Geological Survey National Wildlife Health Center website Canadian Wildlife Health Cooperative.</p>	<p>Source and compile delivery materials.</p>

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MODULE 3: PROBLEM DESCRIPTION

- Describe and apply the different components of the ‘Problem description’ (identify the goal, scope and focus and questions)
- Able to source and collate relevant background information (citing published and unpublished sources) to provide context and justification for a DRA.
- Understanding the importance of engaging relevant people in the development of the problem description
- Clear understanding of how to formulate assumptions and limitations appropriate to the DRA and the importance of transparency in this
- Understanding the challenge and importance of gaining stakeholder agreement on the level of ‘Acceptable risk’ from the start
- Defining success criteria to help define acceptable level of risk
- Understanding how the acceptable level of risk feeds into the consequence and hazard assessment for the identified hazards
- Where translocation is involved, how to identify the translocation pathways for this DRA, and understand how these impact on rest of the process (hazard ID, risk assessment and mitigation steps)

Content	Delivery	Resources	To do
<ul style="list-style-type: none"> • Outline of the steps – eg, from IUCN Manual pg 24 • Definitions/glossary – clearly describes, with examples, the difference between each of these terms • Highlight how important this step is in the overall process, and that it should be undertaken in collaboration • Knowledge of national and international 	<ul style="list-style-type: none"> • Video of a site visit, showing the kinds of discussions, asking questions – showing that its really important to have a practical understanding of what is actually going to happen during the translocation • Prior DRAs – looking at good and poor examples of these components to show the importance of this initial summary, agreement within the stakeholder group and 	<ul style="list-style-type: none"> • IUCN manual/guidelines • All the usual guides/reference papers 	<p>Compile a list of questions which need to be answered/considered in order to create a useful problem description e.g.</p> <ul style="list-style-type: none"> • What is going to affect this DRA? • how do we go about it, and what do we think about at the highest levels? • What is the driver for this DRA? • What is the specific question for this DRA • Which regulations/policy

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<p>legislation and how they impact the DRA</p> <ul style="list-style-type: none"> • Knowledge of the appropriate conservation plans for the species • Recognition that this includes identification of the population(s) of concern (translocated species, sympatric species) • This is the next iteration after the 'causal diagram' considered in earlier section on epi 	<p>how poor outcomes here can affect the rest of the process – possibly delivered as a recorded expert interview.</p>		<p>might guide/inform this process?</p> <ul style="list-style-type: none"> • Video of site visit • Source appropriate case studies. • ID and brief expert and record interview.
Content	Delivery	Resources	To do
<ul style="list-style-type: none"> • Identifying who is important, and who should be involved at this stage • What are the different methods of engagement and when should they be applied 	<ul style="list-style-type: none"> • Show poor outcomes when effective collaboration hasn't occurred at this stage (could be included in expert interview) 	<p>As above</p>	<p>Source relevant case studies.</p>

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Content	Delivery	Resources	To do
<ul style="list-style-type: none"> Content from current IUCN manual Case studies of previous DRA 	<ul style="list-style-type: none"> Case studies Graphic showing how moving things will result in risk 	See Manual pp 24-29	Source and compile delivery materials.
Content	Delivery	Resources	To do
<ul style="list-style-type: none"> Defining the acceptable level of risk in the context of your DRA and methods to gain stakeholders agreement. 	<ul style="list-style-type: none"> Facilitation – eg, creation of a video showing how to gain agreement on this in a meeting space 	<ul style="list-style-type: none"> Knowledge of conservation status, OIE lists of notifiable disease Prior DRAs giving examples 	Source and compile delivery materials. Video of DRA stakeholder discussion on acceptable risk.
Content	Delivery	Resources	To do
<ul style="list-style-type: none"> Description of what a translocation pathway is, and how it affects the DRA How to draw a translocation pathway graphically 	<ul style="list-style-type: none"> Provide a case study of a problem description students need to develop translocation pathways for 	<ul style="list-style-type: none"> Sainsbury and Vaughan-Higgins 2012 	<ul style="list-style-type: none"> Useful applications/open source software to assist in the graphical representation of translocation pathways
<ul style="list-style-type: none"> Open Discussion 	Discussion thread topics: <ol style="list-style-type: none"> Sources of unpublished information Selecting criteria to define acceptable risk Case study issues arising 	<ul style="list-style-type: none"> Live discussion/Forum 	

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Knowledge check	On-line knowledge check on this topic	Short answer/multiple choice questionnaire	
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MODULE 4: RISK COMMUNICATION

Learning outcomes

- Define and develop a communications plan
- Understand the importance role of a communications plan in a multi-stakeholder environment [within the framework of a DRA]
- Understand how to implement a communications plan and channels/methods of communication
- Understand the challenges/complexities involved in dealing with a diverse audience in terms of language, culture, attitudes and multiple disciplines
- Able to identify and apply appropriate tools for managing risk communication.

Content	Delivery	Resources	To do
Demonstration of the DRA process and where risk communication occurs and its importance (2)	<p>Case study/studies</p> <p>Expert webinar/recorded talk on experiences in risk communication – what worked and what didn’t.</p> <p>Personal reading</p> <p><u>Exercise</u>: Disease outbreak scenario with participants responding from unfamiliar perspectives followed by brainstorm discussion.</p>	<p>DRA manual</p> <p>Existing DRA cases that include communications plan</p>	<p>Source suitable case studies</p> <p>Identify presenter and record talk</p>

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Definitions of key DRA terms related to communications (1)	Glossary	DRA manual	Source and compile delivery materials.
Introduction to learning and communication styles and methods, including challenges (3, 4)	<p>Reading pp 112-113 IUCN Manual</p> <p>Personal preference tool giving insight into own learning styles.</p> <p>Context examples of what good and bad communication looks like</p>	<p>Jamie Copsey’s videos for role plays (one good and bad)</p> <p>Free online learning styles tests (could also be pre-course and share with mentor)</p> <p>What motivates people</p>	<p>Johari Window model: http://kevan.org/Johari.cgi</p> <p>Ask Jamie Copsey, CPSG</p> <p>What motivates people (Youtube: Dan Pink -The surprising truth about what motivates us -see https://ed.ted.com/featured/LT8oQQTo</p> <p>Ben Davidson talking about how this t</p> <p>Also look at Maslow’s Hierarchy of needs e.g. https://www.thoughtco.com/maslows-hierarchy-of-needs-4582571</p>
How to develop and implement a communications plan (1, 2, 3)	<p>Elements of an effective communications plan</p> <p>Benefits of identifying stake holders and developing a communications plan and consequences of not doing so.</p> <p><u>Exercise:</u> Develop a draft DRA communications plan for your case study (to be reviewed at end of process)</p>	<p>DRA manual pp 23-25, 91-92</p> <p>Course worksheet</p> <p>Examples of resources/components</p> <p>Online examples e.g. https://communitycomms.org.nz/wp-content/uploads/2016/06/Comms-plan-template.pdf</p>	Source and compile delivery materials.
Communication tools (5, 4)	Conflict management examples	Jamie Copsey (CPSG)	In DRA Manual (p53) – table of tools to use at each stage

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	<p>Basic facilitation skills</p> <p>Trans-disciplinary and cross-cultural considerations and challenges</p> <p>Using different media (written, multimedia, images, audio etc)</p>	<p>Role play videos</p> <p>Examples of opening lines to substitute for less useful conversations (Ben to share his course)</p> <p>Lecture (new course presentation - To be done)</p>	<p>Source and compile delivery materials.</p>
Knowledge check	Short answer/multiple choice questionnaire	To be developed	
Open Discussion	<p>Discussion thread topic</p> <p>Developing a communications plan for the Case Study and issues arising¹</p>	Live discussion	SU/Forum ²

MODULE 5: HAZARD IDENTIFICATION

Learning outcomes

- Be able to clearly define the population(s) of concern within scope and focus of the problem.
- Appreciate what disease is – includes non-infectious disease
- Demonstrate how to conduct a thorough hazard ID for a population of concern
- Know how to establish criteria for ranking the importance of each hazard within the bounds of the DRA goal

¹ Perhaps a panel of experts could be established to review and provide feedback on the case studies as they develop?

² An online forum for participants to interact, share information and ideas and support each other. This could form the basis of an on-going DRA support community.

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Content	Delivery	Resources	To do
<ul style="list-style-type: none"> What is the Population of concern – consider target species, sympatric species, taxonomically related species, share same niche 	<ul style="list-style-type: none"> Use of case studies, and getting students to identify population(s) of concern 	<ul style="list-style-type: none"> Previous DRAs 	Identify suitable DRAs as exemplars
<ul style="list-style-type: none"> Definitions – infection vs disease, non-infectious disease Factors that can contribute to health concerns – captive, wild, stress of translocation/capture 	<ul style="list-style-type: none"> Glossary Lecture based on case studies 	DRA Manual pp 145-149	Convert glossary for quick search access within online course.
Content	Delivery	Resources	To do
<ul style="list-style-type: none"> Resources to use – literature (published/unpublished), databases, experts in field, medical reports 	<ul style="list-style-type: none"> Same lecture based on case studies 	<ul style="list-style-type: none"> ZIMS eWHIS/national wildlife disease database Recovery plans/reports Scientific literature 	Source and compile delivery materials.
<ul style="list-style-type: none"> Clear explanation of the importance of establishing criteria for ranking each hazard Explain how to assign likelihood & consequence to hazards – which tools to use to achieve this Consider the consequence of each hazard to help decide whether a full hazard assessment is required for each hazard Transmission pathways and how this information can be 	<ul style="list-style-type: none"> Same lecture with examples of tools/approaches used to assign likelihood/consequences and the tools used to prioritise – eg with and without a matrix. 	<ul style="list-style-type: none"> Dalziel, A.E., Sainsbury, A.W., McInnes, K., Jakob-Hoff, R. and Ewen, J.G., 2017. A comparison of disease risk analysis tools for conservation translocations. <i>EcoHealth</i>, 14(1), pp.30-41. pp29-34 and Sainsbury and Vaughan-Higgins (2012) 	<ul style="list-style-type: none"> Pull together a list of hazards for the personal case study and use two prioritization tools to show how different methods can give different results

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used to understand/clarify risk of hazards <ul style="list-style-type: none"> Exclusion of hazards – how to achieve this, what it means 			
<ul style="list-style-type: none"> Knowledge check 	<ul style="list-style-type: none"> On-line knowledge check on this topic 	<ul style="list-style-type: none"> Short answer/multiple choice questionnaire 	
<ul style="list-style-type: none"> Open Discussion 	Discussion thread topics 1) Generating hazard list in the absence of species-specific data 2) Case study issues arising	<ul style="list-style-type: none"> Live discussion 	<ul style="list-style-type: none"> TBD/Forum

MODULE 6: RISK ASSESSMENT 1: QUALITATIVE

Learning Outcomes

- Understand and be able to apply the elements of a qualitative risk assessment using appropriate qualitative terminology
- Familiarity with ‘rapid’ and ‘comprehensive’ risk assessment methods, the pros and cons of each and the appropriate circumstances for each
- Familiarity with and ability to use a range of qualitative risk assessment tools
- Demonstrated ability to construct a hazard pathway diagram and identify Critical Control Points (CCPs)

Content	Delivery	Resources	To do
<ul style="list-style-type: none"> Justifying the selection of hazards for detailed risk assessment. Eg. Risk estimation: Based on the above and (any other considerations), the overall risk of this hazard to (population(s) of interest) is 	<ul style="list-style-type: none"> Lecture/reading with case study examples 	<ul style="list-style-type: none"> Existing IUCN manual and guidelines for DRA OIE - https://www.oie.int/fileadmin/Home/eng/International_Standard_Setting/docs/pdf/WGWildlife/A_Training_Manual_Wildlife_3.pdf 	Table/flow chart of available tools – eg, includes international border, known disease risks, reintroduction, geographic barrier, resources available (eg time) – which leads you to

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<p>ranked as (HIGH/MEDIUM/LOW/NEGLECTIBLE) and risk mitigation actions are/are not recommended.</p> <ul style="list-style-type: none"> • Ensuring transparency in methodology including level of uncertainty, assumptions and limitations. E.g. Level of Confidence in this Risk Estimation (Rank High, Medium or Low and explain the basis of this ranking) • Documenting knowledge gaps and identifying research to reduce uncertainty 		<ul style="list-style-type: none"> • Best practice guidelines for the re-introduction of great apes - http://www.primatesg.org/best_practice_reintroduction/ • Suarez, M.B., Ewen, J.G., Groombridge, J.J., Beckmann, K., Shotton, J., Masters, N., Hopkins, T. and Sainsbury, A.W., 2017. Using qualitative disease risk analysis for herpetofauna conservation translocations transgressing ecological and geographical barriers. EcoHealth, 14(1), pp.47-60. https://link.springer.com/article/10.1007/s10393-015-1086-4 • Electronic databases In Australia eWHIS WAHID - https://www.oie.int/wahis_2/public/wahid.php/Diseaseinformation/diseasehome Canadian Wildlife Health Cooperative Wildlife Disease Database - http://www.cwhc-rscf.ca/wildlife_disease_database.php Country specific lists of notifiable diseases 	<p>an appropriate method/tool – and THIS is part of the course content ie, students would need to show that they have used each as a case study</p>
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Content	Delivery	Resources	To do
<ul style="list-style-type: none"> The format and terminology for a qualitative risk assessment 	<ul style="list-style-type: none"> Lecture/reading with case study examples Glossary 	<ul style="list-style-type: none"> Manual glossary 	Record lecture; source case studies
<ul style="list-style-type: none"> Rapid risk assessment methods and their application; advantages and disadvantages 	<ul style="list-style-type: none"> Expert interview: Kate McInnes re use of NZ DOC's DRAT tool 	<ul style="list-style-type: none"> Reading McKenzie and Langstaff report for MAF re RRA to prioritize wildlife surveillance. 	Requests to Kate McInnes and Jo McKenzie.
<ul style="list-style-type: none"> Tools that can assist qualitative risk assessment. 	<ul style="list-style-type: none"> Demonstration of tool use for each step in the risk assessment 	<ul style="list-style-type: none"> DRA Manual Figs 9 & 10 pp 52-53 Case study exemplars 	Access to tools which can be applied at different levels
<ul style="list-style-type: none"> Use of graphical models and scenario trees to visualise biological and spatial pathways and factors influencing disease occurrence. 	<ul style="list-style-type: none"> Reading/case studies Exercise: Develop graphical models/scenario trees for individual case study 	<ul style="list-style-type: none"> DRA Manual pp 60-74 Case study exemplars 	Source and compile delivery materials.
<ul style="list-style-type: none"> Knowledge check 	<ul style="list-style-type: none"> On-line knowledge check on this topic 	<ul style="list-style-type: none"> Short answer/multiple choice questionnaire 	
<ul style="list-style-type: none"> Open Discussion 	Discussion thread topics 1) Transparency in qualitative risk assessment 2) Case study issues arising	<ul style="list-style-type: none"> 	TBD/Forum

MODULE 7: RISK ASSESSMENT 2: QUANTITATIVE

Need to include (maybe in the overview of qualitative versus quantitative approaches) – thinking up front about what the management options are – fit the level of analysis to the decisions that you need to make.

Learning Outcomes

- Be aware of the main quantitative tools available for the risk assessment component of DRA.

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- Understand which tools are most applicable to different situations.
- Understand the role of an expert, where to find one and how to work with them to answer the specific questions posed.
- Have a basic understanding of how to interpret the outputs of quantitative risk assessments.
- Understand when to apply quantitative risk assessment e.g. for sensitivity analysis.
- Open Discussion
- Knowledge check

Content	Delivery	Resources	To do
<ul style="list-style-type: none"> • Overview of what modelling is used for. • Different types of tools (regression analyses, expert elicitation). • Data availability and sources. • Basic stats integrated into teaching via a case study. 	<ul style="list-style-type: none"> • Written materials • Brief written description of OUTBREAK followed by: • Case study (Bob Lacy video) AND • Interactive OUTBREAK run-through (point and click) • Dolphin network models? 	<p>IUCN/OIE DRA Manual (tools section – just the tools relevant to quantitative analysis)</p> <p>OIE Handbook Vol II: Quantitative Risk Assessment.</p> <p>OIE publication - Garner & Hamilton Rev. sci. tech. Off. Int. Epiz. Vol 30(2) (2011)</p> <p>Ward et al., same volume and some other sections on wildlife (link is in my email tray)</p> <p>https://web.oie.int/boutique/index.php?page=ficprod&id_produit=944&fichrech=1&lang=en</p>	<p>Case studies to illustrate the effective application of different kinds of quantitative approaches to different DRA problems – to illustrate the range of things that are done.</p> <p>Ensure a capable facilitator for this session!</p> <p>Access an interactive OUTBREAK presentation/session (work with SCTI)</p> <p>Review of quantitative tools → Update of the manual? OIE Scientific and technical review link</p>
<ul style="list-style-type: none"> • Case studies of “bookend” examples • Mark Re-capture 	Lecture/reading		Source suitable case study
<ul style="list-style-type: none"> • Case study • OIE Terms of Reference 	Lecture/reading		Source suitable case study PDF OIE Terms of reference
<ul style="list-style-type: none"> • Walk-through of sample outputs 	Exercise: interpretation of carefully chosen outputs		Design exercise
<ul style="list-style-type: none"> • Advantages and disadvantages 	Short exercise – examine your own case and discuss		Formulate questions

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	the pros and cons of applying a quantitative approach.		
Discussion thread topics 1) Q&A relating to videos. 2) Applicability of OUTBREAK to participant's selected case studies	Webinar		ID webinar host and describe content requirements
On-line knowledge check on this topic	Short answer/multiple choice questionnaire		

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MODULE 8: RISK MANAGEMENT

Learning Outcomes

- For each hazard, be able to identify the range of risk management options
- Understand range of approaches to disease risk management in wildlife and when to seek expert advice. (e.g. an outbreak vs. controlled animal movement)
- Be able to assess the feasibility and effectiveness of risk management options
- Recognize when research is required to support more immediate risk management actions
- Be able to develop a contingency risk management plan
- Open Discussion
- Knowledge check

Content	Delivery	Resources	To do
<ul style="list-style-type: none"> • Explain approaches to reducing the likelihood of disease risk and what can be done to reduce the implications once a disease occurs. 	<ul style="list-style-type: none"> • Lecture • Personal reading • Case studies for this section • Videos illustration a disease investigation and control methods 	DRA Manual pp39-44 Wildlife Health Australia Biosecurity Manual	Source and compile delivery materials.
<ul style="list-style-type: none"> • Introduce general principles of managing disease risks in the context of epidemiology e.g. isolation, quarantine, vaccine and seeking expert advice. 	Lecture		Source and compile delivery materials.
<ul style="list-style-type: none"> • Explain approaches to ranking risk management options with examples 	Lecture/case study examples	Table VIII p 40	Source and compile delivery materials.
<ul style="list-style-type: none"> • Describe situations in which action needed to be taken while information gaps and research priorities are identified and followed through. 	<ul style="list-style-type: none"> • Examples of case studies such as Bellinger Rive snapping turtle in which this applied. • Corroboree frog where there is no clear exit strategy. 	Published case studies	Source and compile delivery materials.

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Content	Delivery	Resources	To do
<ul style="list-style-type: none"> Explain and show examples of a prioritized contingency plan Introduce decision trees as a tool for mapping out potential options in the presence of uncertainty. Explain the adaptive management cycle and its application to DRA 	Case study examples	DRA Manual p45 Tools section of Manual re decision trees; p.35 for tools.	Source and compile delivery materials.
Discussion thread topics: 1) What makes a mitigation feasible and effective? 2) Case study issues arising	<ul style="list-style-type: none"> Live discussion 	<ul style="list-style-type: none"> TBD/Forum 	<ul style="list-style-type: none">
<ul style="list-style-type: none"> On-line knowledge check on this topic 	<ul style="list-style-type: none"> Short answer/multiple choice questionnaire 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none">

MODULE 9: IMPLEMENTATION AND REVIEW

Learning Outcomes

- Be able to develop an implementation action plan
- Design a plan to monitor and evaluate (*review*) the effectiveness of the management actions.

Content	Delivery	Resources	To do
<ul style="list-style-type: none"> Identify goals, roles and responsibilities (including the importance of a designated project leader), timeline and resources required. Providing some case study examples 	Lecture/case studies	<ul style="list-style-type: none"> DRA Manual Appendix 5 p 112 re group dynamics DRA Manual example p43-44 	Source and compile delivery materials.
<ul style="list-style-type: none"> Introduce a program logic approach to planning for 	Lecture/case studies	Manual Appendix 6 pp118-119	Source and compile delivery materials

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monitoring and evaluation of the plan implementation.			
Content	Delivery	Resources	To do
Open discussion: possible topics: 1) Considerations from differing perspectives e.g. landowner, ecologist, conservation manager, wildlife vets etc. 2) Case study issues arising	<ul style="list-style-type: none"> Live discussion 	<ul style="list-style-type: none"> TBD/Forum 	
<ul style="list-style-type: none"> On-line knowledge check on this topic 	<ul style="list-style-type: none"> Short answer/multiple choice questionnaire 		

MODULE 10: WORKSHOP PLANNING AND REPORTING

Learning Outcomes

- Able to develop a facilitation plan for a multi-stakeholder DRA
- Understand how to integrate DRA into a broader species conservation plan.
- Know when to seek help of an expert facilitator
- Considerations in constructing and finalising the DRA report
- On-line knowledge check on this topic

Content	Delivery	Resources	To do
<u>Exercise</u> : draft plan for selected DRA case study.	Lecture/+personal reading pp 112-117	Under development	Record lecture
<u>Exercise</u> : Complete and submit final case study DRA report.	Webinar + review of submitted case studies	Example case study reports Completed worksheet exemplar	Identify webinar host

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Content	Delivery	Resources	To do
Live discussion: Possible topics <ul style="list-style-type: none"> • Facilitator’s role and responsibilities • Challenges of multi-stakeholder engagement • Issues relating to case study 	TBD/Forum		
Short answer/multiple choice questionnaire		To be developed	

TRAINING APPLICATION PLAN AND COURSE ASSESSMENT

Description and content	Format	Lead	Progress
Course review: What have we learnt, what did we not understand and what would we like to discuss further?	Online survey	MJH/JC	To be developed
Now at the end of the course we ask individuals to submit their Personal Development Plan detailing how you intend to apply course learning. The plan should include the scope, focus, justification and plan for the next DRA you will conduct and what tools and processes you intend to use at each step in the process and why.	Personal Development Plan submission	JC/RJH	TBD

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<p>Submission for a Certificate of Reflective Practice to include: Reflection on progress made against baseline self-assessment and how you think the course went, what went well and what could have gone better. What you would do differently next time to improve the DRA course outcomes for others.</p>	<p>Written submission</p>	<p>JC/RJH</p>	<p>To be adapted from Facilitation course with help from Jamie Copsey</p>
<p>Course End</p>			