

NATIONAL INVASIVE ANT BIOSECURITY PLAN - IMPLEMENTATION SUMMARY

The Environment and Invasives Committee, a subcommittee of the inter-governmental National Biosecurity Committee, will provide formal oversight of the implementation of the plan. This table summarises the actions identified in the *National Invasive Ant Biosecurity Plan* relating to prevention, detection, response, containment, asset-based protection (ongoing management) and cross-cutting issues. Actions highlighted in:

- **green** are current projects over the next 3–5 years or funded within existing resources, and when completed will fulfil the action
- **blue** are being partially implemented, or aspects are being implemented but will not fulfil the action completely
- **orange** are projects that have yet to be implemented (as at 2018).

Timeframes (from plan): Timeframe: SHORT up to 3 years; MEDIUM 3 to 8 years; LONG 8 to 10 years, VERY LONG 10 years and beyond.

The lead, notes on how to implement, and potential cost or people resources are provided as a guide to organisations to identify where they can invest their available or future resources.

| ACTION AREAS | | Lead | Priority | Timeframe | Notes – how to implement | Potential cost/people | Dependencies to other actions |
|----------------------|---|--|----------|-------------|---|--|------------------------------------|
| 1. PREVENTION | | | | | | | |
| 1.1 | Conduct risk assessments for high priority exotic species | DAWR (existing resources). Project commenced in 2017-18. | High | Short term | <p>Risk assessment will include consideration of biology, interception data, import pathways, modelling, risk mitigation/ management options. Risk assessments need to be conducted on individual species but the identification of functional groups will help.</p> <p>Over time cross-reference to ants identified in the ABARES priority species project and also to the Invasive Species Council invertebrates risk assessment project.</p> | Fourth quarter 2018. | Supports many other actions. |
| 1.2 | Support PaDIL or another system to host resources for the identification of native and exotic ant species | PHC (DAWR existing resources initially) | Medium | Medium term | DAWR to determine future with PHC. | 500k to deliver new platform for images, limited long term costs | Relates to 1.3, 2.1, 2.2, and 2.3. |

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| | | | | | | for maintenance of images DAWR is nominally involved, subject to budget and resource considerations. This will not necessarily be funded separately, as it makes sense to consider this in conjunction with interlinked actions. | |
| 1.3 | Establish a National Reference Collections for ants | DAWR (project) Project commenced in 2017-18 for imagery. | Medium | Medium term | Further imagery and molecular data required. | DAWR is nominally involved, subject to budget and resource considerations. This will not necessarily be funded separately, as it makes sense to consider this in conjunction with interlinked actions. | Platform to share images relates to 1.2. |
| 1.4 | Support an international shipping container standard | DAWR (existing resources) | High | Very long term | International policy work undertaken by DAWR | N/A | Relates to 1.5, and 6.2. Supported by 1.1. |
| 1.5 | Engage with trading partners | DAWR (existing resources) | High | Short term | International work undertaken by DAWR. | N/A | Relates to 1.4, 6.2 and supports many other actions. |
| 2. DETECTION | | | | | | | |
| 2.1 | Develop taxonomic keys for the identification of invasive ants | Tbc [<i>entomologists – CSIRO, museum or university</i>] | High | Medium term | Draw on international work already developed. Challenge for Australia is the development of enough relevant taxonomic keys for the identification of native ants that may be confused with exotic invasive ants. | People time to make the keys – which will be Australian myrmecologists and those with international knowledge. DAWR is nominally involved, subject to budget and resource | Relates to 1.2, 1.3, 2.1 and 2.3. |

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| | | | | | | considerations. This will not necessarily be funded separately, as it makes sense to consider this in conjunction with interlinked actions. | |
| 2.2 | Develop a diagnostic handbook for invasive ants and training of diagnosticians | DAWR (project) Project commenced in 2017-18 to develop specialised training. | High | Short term | Development of specialised training. Delivery of training and handbook. | DAWR is nominally involved, subject to budget and resource considerations. This will not necessarily be funded separately, as it makes sense to consider this in conjunction with interlinked actions. | Relates to 1.2, 1.3, 2.1 and 2.3. |
| 2.3 | Develop and validate diagnostic protocols to support detection and surveillance | Tbc [Entomologists – CSIRO, museum or university for technical information. Roll-out may be the above or governments] | High | Long term | Draw on international work already developed (e.g. PIAT key). | Six month project or \$50,000 to develop and validate a diagnostic protocol for each species/genera. DAWR is nominally involved, subject to budget and resource considerations. This will not necessarily be funded separately, as it makes sense to consider this in conjunction with interlinked actions. | Relates to 1.2, 1.3, 2.1 and 2.3, 2.6, and 3.1. |
| 2.4 | Monitor and inspect port areas | DAWR (existing resources) | High | Short term, ongoing | Ports are already monitored for invasive ants. Actions under area 1 and 2 will assist DAWR staff undertaking this action. | N/A | Relates to 2.5, 2.6, and 2.9. |

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| 2.5 | Undertake mandatory trapping and monitoring at facilities operating under Approved Arrangements | DAWR (existing resources) | High | Short term, ongoing | DAWR and Approved Arrangements staff already monitored for invasive ants. Actions under area 1 and 2 will assist DAWR staff undertaking this action. | N/A | Relates to 2.4, 2.6, and 2.9. |
| 2.6 | Develop strategy for surveillance beyond ports | Jurisdictions (existing resources) | High | Long term | This action will require actions 1.1, 2.2, 2.3 to be at least partially complete to determine the approach of the strategy. | Could be a national strategy that the EIC Terrestrial Invertebrates WG drafts for adaption by each jurisdiction. Six months, \$50,000 to develop a strategy. Will then require implementing. | Requires 1.1, 2.2 and 2.3. Relates to 2.4, 2.5, 2.9, and 3.1. |
| 2.7 | Develop national training programs for government and industry | Tbc <i>[Training package will require entomologists working in association with an educator familiar with national training program development. May need to be overseen by government. Delivery by governments]</i> | Medium | Short term | Two steps: i. Project to pull together the training package. ii. Delivery. Need to identify key industries to target. | One year \$120,000 to develop training package. Delivery to First Ports and Approved Arrangements will be in association with other training provided by DAWR. Roll-out to other areas/industry part-time position over time. \$60,000 pa. | Relates to 2.8, 6.10, and 6.11. |
| 2.8 | Increase national awareness | tbc, relates to 6.10 <i>[Government based liaison person]</i> | Medium | Short term | This action is focused at key industries. Could be a specific roll-out of action 2.7? Delivery to First Ports and Approved Arrangements will be in association with other training provided by DAWR. | Implement national communication strategy to raise awareness of biosecurity, including invasive ants (as per 6.10.) | Relates to 2.7, 6.10, and 6.11. |

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| | | | | | | <p>There will be a role for the National Communication and Engagement Network.</p> <p>Probably require one person part-time per industry or jurisdiction to liaise and assist with roll-out.</p> | |
| 2.9 | Develop strategy for prophylactic baiting at high priority locations | Jurisdictions (existing resources) DAWR at ports. | High | Long term | <p>Would be done at ports or approved arrangements in association with inspection, surveillance and other current risk assessment procedures. May be appropriate for places such as automatic container terminals where surveillance is more challenging.</p> <p>Needs actions under areas 1 and 2 to provide risk assessment and protocols to implement.</p> | Need to develop strategy/plan, undertake research perhaps and then roll out as business as usual activity | Relates to 2.3, 2.4, 2.5, 2.6, and 3.1. |
| 3. RESPONSE | | | | | | | |
| 3.1 | Develop standardised response procedures for invasive ants | DAWR (project) Yet to commence. | High | Medium term | DAWR project. Will be in line with requirements under NEBRA. | \$120k/12 months | Informed by many other actions. |
| 3.2 | Test and validate formulations to treat invasive ants using overseas' experience | Tbc <i>[Consultancy run by government]</i> | Medium | Medium term | Step 1: review potential candidates for Australia. Step 2: experimental research to test effectiveness in Australian conditions and potential non-target risks. Step 3: seek registration. | <p>Step 1: Review, 6 months either in-house or consultant. \$80,000</p> <p>Step 2: Research stages. \$0.5 - \$1 million.</p> | Relates to 3.3, and 3.4. |

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| | | | | | | Step 3: Registration package writing and registration costs. | |
| 3.3 | Select the best eradication tools based on national and international experience | Jurisdictions (existing resources), input to 3.1 | Medium | Short term, ongoing | Review of existing tools applicability to other species or locations. | Included in 3.1 | Will inform 3.1. |
| 3.4 | Examine biological control and genetic tool options | Tbc <i>[Biological control review could be a consultancy.]</i> | Low | Long term | <p>An action to link in with other groups examining genetic technology for invasive species. Review projects to identify possible biological control agents or genetic tools.</p> <p>Consideration of genetic tools needs to fit in with other conversations/ research related to other invasive species.</p> <p>Regulatory steps are required once an agent (of either variety) is found.</p> | Initial assessment \$80-100,000. Lots for any further examination of potential tools and multiple years. | Will support many other actions. |
| 3.5 | Develop and validate cost-effective field based diagnostic surveillance tools | Tbc <i>[Researchers – CSIRO, university or museum]</i> | Medium | Medium to long term | Continue work on lateral-flow devices. Identify and commence work on others. Links with Action 2.3 (detection tools). Research to start with then field trials prior to deployment. | Research or field trial project: variable but \$250,000 for a 1-2 year project. | Relates to 2.1, 2.2 and 2.3 and supported by many other actions. |
| 3.6 | Analyse the lessons learnt from eradication programs, and transfer knowledge and expertise to other invasive ant programs | Jurisdictions (existing resources) | High | Short term | There will be a substantial amount of this information already in reporting – collation and dissemination to others a key. | Coordinated by the EIC Terrestrial Invertebrates WG and using government people. Could be undertaken as part of implementing 3.1. | Will inform 3.1. |

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| 3.7 | Ensure harmonised compliance arrangements for interstate trade have a scientific basis | PHC (existing resources) | High | Short term | Refer to Plant Health Committee for implementation advice. | Subcommittee on Domestic Quarantine and Market Access. | Informed by 1.1. |
| 4. CONTAINMENT | | | | | | | |
| 4.1 | Profile pathways, vectors and goods for the movement of established invasive ants between regions and states/territories in Australia | Jurisdictions | High | Short term | Profiles to be established from risk assessments and grouping of invasive ants by pathways. Second stage is for the risk mitigation. | First stage can be done as a discrete project with assistance from jurisdictions with knowledge/ant programs. Second stage will require each jurisdiction to undertake their necessary bit, probably in-house. | Informed by 1.1, 4.2, 5.1, 6.1, 6.2, 6.7, 6.8, 6.9, and 6.11. |
| 4.2 | Map the potential distributions for the established invasive ants | Tbc [<i>Government environmental modellers</i>] | Very high | Short term | Mapping project. | Complexity of the project will determine person time and cost. 3 months, \$40,000 for one species. | Informed by 1.1, 4.1, 5.1, 6.1, 6.2 and 6.7. |
| 4.3 | Develop contingency plans for invasive ant incursions to high priority sites | Site managers | Medium | Short to medium term | Standardised response procedures will assist (action 3.1), although they need to be site specific. | Site specific contingency plans would be developed by or for site managers. Possibly 6 months work, part-time including consultation. | Supported by 1.1, 2.3, 2.6, 3.1, 3.6, 4.1, 5.1, 6.1 and 6.2. |
| 4.4 | Improve the detection of invasive ants when they establish new populations | Researchers | Medium | Medium term | New tools, surveillance practices are needed and these need to be rolled out to land managers. | Development of tools and surveillance practices \$250,000 for a 2-year project. Roll-out via the communications and engagement action. | Supported by 6.7, 6.8, 6.9, 6.10 and 6.11. |
| 5. ASSET-BASED PROTECTION/ ONGOING MANAGEMENT | | | | | | | |
| 5.1 | Ensure key physical and ecological attributes are known for the established priority invasive ants | Researchers | Very high | Short term | Project to determine what needs to be done for the | Review project to determine needs \$80,000. | Supported by 1.2, 1.3, 2.1, 2.2, and 2.3. |

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| | | | | | established ants. Then undertake work. | | |
| 5.2 | Develop strategies for long term suppression of invasive ants and thresholds for control | Researchers and project managers | Medium | Medium term | Ongoing management plans to be developed, and shared between managers of the same species. | Research or field trial project: variable but \$250,000 for a 1-2 year project. Sharing of knowledge via collaborative groups (in kind). | Informed by 1.2, 1.3, 2.1, 3.6, 4.2, 5.1, 5.3, 6.1 and 6.2. |
| 5.3 | Undertake ongoing control programs for invasive ant species in localised areas where there are significant biodiversity, agricultural or human benefits | Land managers | High | Short term, ongoing | Need to define the assets being protected. | Control programs 5+ days per year. | Informed by 1.2, 1.3, 2.1, 3.6, 4.2, 5.1, 5.2, 6.1 and 6.2. |
| 5.4 | Eradicate invasive ants from smaller islands | Island managers | High | Short to medium term | Eradication programs using baiting. Site specific plans will be required for each island | Costs will vary depending on remoteness and species. Upper bound for a remote site about \$3.5-4.5 million. Eradication programs are likely to take 1-2 years, with a further 2 years of monitoring. | Informed by 1.2, 1.3, 2.1, 3.6, 4.2, 5.1, 6.1 and 6.2. |
| 5.5 | Ensure there are monitoring protocols for the invasive ant species to assess impacts on biodiversity | Researchers and project managers | High | Short, medium and long term | A suite of monitoring protocols suitable for different scales, budgets and resources for local groups to measure the effectiveness of programs. May be able to adapt other biodiversity monitoring protocols or compile currently used protocols. | Compilation and development of protocols, 1 year project, \$120,000. | Informed by 1.2, 2.1, 4.2, 5.1, 5.6, 6.1, 6.2, 6.8 and 6.9. |
| 5.6 | Include Indigenous knowledge about ants into invasive ant management | Project managers | Low-medium (location dependent) | Medium term | Should be built into the planning process. | May require additional time during planning phase. | Informs 4.3, 4.4, 5.2, 5.3, 5.4, 5.5 and 6.3. |
| 6. CROSS CUTTING ISSUES | | | | | | | |

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| 6.1 | Maintain, and ideally increase, Australian expertise in invasive ants, including diagnostics | Jurisdictions (existing resources) | Medium | Long term, ongoing | Provision of scholarships to attract students to myrmecology. | Australian Government Research Training Program Stipend Scholarship is worth \$27,082 pa and awarded for 3 years. DAWR Priority Pest and Disease Planning and Response and Surveillance announcement in 2018-19 and ongoing includes building national diagnostic capability through scholarships and other mechanisms | Once implemented will inform 1.1, 1.3, 2.1, 2.2, 2.3, 2.5, 3.5, 5.1, and 6.2. |
| 6.2 | Support international collaboration and exchange of information relating to invasive ants | DAWR (existing resources) | Medium | Long term, ongoing | <p>Opportunities in plan are a website to share info, feed into international sites, international partnerships, and publications. Establish an international group, initially based on the people at the 2016 workshop + recommendations.</p> <p>Coordination of the group needs to be formal and with one Lead. EIC TIWG should be involved by not coordinating (see Action 6.5).</p> | <p>Opportunistic. Minimal cost.</p> <p>Ideally, eradication programs should provision for sharing of information (e.g. time to write papers and/or technical website materials).</p> | Relates to all actions. |
| 6.3 | Deliver training on the control of specific invasive ants | Tbc <i>[Coordinated by governments]</i> | Medium | Medium term, ongoing | Similar to action 2.7. Develop training package and deliver, except that this is a different audience (local groups). | Development of a training package for several ants, 1 year, 1 person. | Relates to 2.7, 2.8, and 6.11. |

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| | | | | | First step is to identify skilled people within the localised eradication, containment and control programs underway in Australia for invasive ants (e.g. RIFA – Qld, EA – Qld, YCA – CSIRO, WTMA, Parks Australia, AA – Parks Australia, ABHA – Parks Australia, CSIRO, and Browsing ant – WA, NT). Skilled people – additional incentives to provide time for these people to undertake the skill transfer work? | Delivery requirements will be variable. | |
| 6.4 | Establish an invasive ant reference group | Tbc <i>[EIC TIWG to coordinate]</i> | High | Short term | Group of Australian ant experts. Should work with the EIC TIWG. | Will require some (minimal) secretariat support. | Supports delivery of all other actions. |
| 6.5 | Establish a permanent national body to coordinate national actions on invasive ants | EIC | High | Short term | EIC TIWG to oversee. | In-kind | Supports delivery of all other actions. |
| 6.6 | Develop future funding alternatives | Tbc <i>[Consultancy led by government]</i> | Medium | Medium term | Project to consider who are risk creators in the spread and establishment of invasive ants and determine if they can contribute to funding responses. | Consultancy \$80,000. Some work is in progress through the National Biosecurity Committee. | May support delivery of 2.4, 2.5, 2.6, 2.7, 2.8, 2.9, 3.7, and 6.11. |
| 6.7 | Improve the modelling tools for spread, habitat and disturbance modelling of invasive ants | Tbc <i>[Government environmental modellers]</i> | Medium | Medium term | Probably linked to action 1.1 and 4.2. Would need to scope to determine cost and resources. | Improvement of modelling tools, 2-year project \$250,000. | Informed by 1.1, 4.1, 4.2, and 5.1. |
| 6.8 | Research into other control and monitoring technologies and enhancing available technology | Tbc <i>[Researchers – CSIRO, university or museum]</i> | High | Short term, ongoing | Research projects into new technologies and their applicability to invasive ants. | Research project: variable but \$250,000 for a 1-2 year project. | Informed by 1.1, 4.1, 4.2, 5.1, 6.1, 6.2, and 6.9. |
| 6.9 | Continue research into new attractants for monitoring and more | Tbc | High | Short term, ongoing | Research projects into new attractants for invasive ants. | Research project: variable but \$250,000 for a 1-2 year project. | Supports delivery of 2.5, 2.6, 2.9, 3.1, 3.2, 3.3, 3.5, and 5.5. |

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| | effective bait delivery for invasive ants | [<i>Researchers – CSIRO, university or museum</i>] | | | | | |
| 6.10 | Develop and implement a communication and engagement strategy | Tbc [<i>Governments, possibly a consultancy. Could be a project of the EIC TIWG; NCN role</i>] | High | Medium term | Scope of the communication and engagement strategy will need to be determined. | RIFA SE Qld eradication program uses ~\$1 m and 6 staff. Scope may be most effective to be broader than ants, but include them as a key topic. | Supports delivery of many other actions. |
| 6.11 | Build awareness and develop relationships with industries in the high-risk transport and goods import sectors | DAWR (existing resources) | High | Short term | This could be implemented in association with or using material developed for action 2.7. | Ongoing business as usual for DAWR. | Relates to 2.7, and 2.8. |

Acronyms:

DAWR - Department of Agriculture and Water Resources

EIC – Environment and Invasives Committee

EIC TIWG – Environment and Invasives Committee's

Terrestrial Invertebrate Working Group

PHC – Plant Health Committee

PaDIL - Pest and Disease Image Library

tbc – lead organisation/group is to be confirmed