



Threatened  
Species  
Recovery  
Hub

National Environmental Science Programme



## Effective cross-cultural conservation planning for significant species

Best practice guidelines developed  
to care for the Byron Bay Orchid habitat  
@ Arakwal National Park, Australia





Cover images: Byron Bay Graminoid Clay Heath habitat, Arakwal National Park. Credit: Josie Carwardine  
Inset: Byron Bay Orchid *Diuris byronesis* Credit: Norman Graham

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## Effective cross-cultural conservation planning for significant species

These best practice guidelines describe a set of steps to assist with planning, management and evaluation for significant species in a cross-cultural setting.

The guidelines were developed in Australia's Arakwal National Park and adapted current IUCN endorsed species conservation planning and Green List evaluation frameworks.

We demonstrate how to use the guidelines for an Indigenous-led project to co-manage the endangered Byron Bay Orchid and its surrounding values.



Byron Bay Orchid *Diuris byronensis*. Image: Norman Graham



'Geebung' *Persoonia* sp., a bush tucker plant at Arakwal National Park. Image: Norman Graham



Pied Oystercatcher *Haematopus longirostris* on Tallows Beach, Arakwal National Park. Image: Norman Graham



Paperbark swamp, Arakwal National Park. Image: Norman Graham

## Arakwal National Park and the Byron Bay Orchid habitat

Australia's Arakwal National Park is owned by the Arakwal people and is governed through a joint management agreement negotiated as part of an Indigenous Land Use Agreement.

The park holds many significant values. One of these values is the endangered Byron Bay Orchid *Diuris byronensis*, which exists in the Graminoid Clay Heath Endangered Ecological Community within the park.

Joint managers of Arakwal National Park are working together to care for a range of values that exist in and around this unique clay heath landscape.

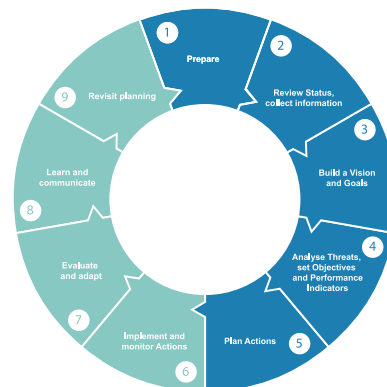
## Planning and evaluation frameworks



These guidelines were developed through an **Arakwal-led approach** to develop effective cross-cultural approaches to co-manage the Byron Bay Orchid (*Diuris byronensis*) and its clay heath habitat in Arakwal National park.

These guidelines follow the 9 broad steps outlined in the **species conservation planning cycle** developed by the Species Survival Commission (SSC).

They apply an adaptable cross-cultural lens and learnings to these standardized planning steps.



These guidelines also use the **Green List Standard** to evaluate the effectiveness of each step and the broader cross-cultural planning and management effort.

Globally, Arakwal National Park was the first co-managed protected area to be approved and listed under the IUCN Green List.



## How to use these best practice guidelines

To use these guidelines, **follow each step (1-9)** of the conservation planning cycle.

Each step is outlined on it's own page:

- **Explain important features of each step** and show how it can be evaluated using the Green List Standard
- provide **a tangible example** of how we adapted each of these steps when planning for the management and evaluation of the Byron Bay Orchid heath habitat.

We co-developed these guidelines with a set of researchers, managers, Arakwal Traditional Owners and other experts. Other situations will involve different challenges and adaptations to account for local values, environmental conditions and cultural practices.

# 1. Prepare

This step of the species conservation planning cycle involves defining the purpose, scope, timing and approaches that will be involved with the planning task.

In a cross cultural context, this step involves an agreement about what is needed to care for significant species and their habitats. Some of the species and other values that are significant to Indigenous communities may also be significant to conservation partners - and some are not.

Details of the purpose of planning, triggers, and the significance of values around the species of concern should be described here.



The Green List framework (Good Governance & Sound Planning) can be used to evaluate whether preparation has occurred in line with suitable collaborative processes. The preparation statements should be evaluated and tested by Indigenous collaborators and agency staff to ensure these reflect input from appropriate people, are clear to interpret, and provide a straightforward direction for the remaining steps of the planning process.



## @ Arakwal

The **purpose** of the orchid collaborative species planning process at Arakwal National Park were to:

- develop a **cross-cultural planning process** for Arakwal National Park, which can be applied to other species and locations
- agree upon **shared values** and beneficial **management actions** to care for the Byron Bay Orchid and its surrounding clay heath habitat and associated values at Arakwal National Park
- identify, seek support for and implement **shared priority actions** to conserve these values
- develop an **evaluation process** which can help to inform a Green List standard in co-managed protected areas
- **evaluate** the planning process and its outcomes for the Bryon Bay Orchid and its surrounding values and habitat

**Triggers** were established to indicate when further planning is required

The task involves **planning for a single species and its habitat** (Byron Bay Orchid, Clay Heath) with multiple associated values as outlined in park management plan

**Time scale:** 2 years from project inception until production of final product

**Climate change** considered at a local scale

Guidelines produced will be **flexible**

A **co-research agreement** with the research team, Arakwal and the NSW NPWS was negotiated, which involved:

- using the Green List components to outline our focus on the management of the orchid and its surrounding environment
- support for Arakwal Traditional Owners
- decision-making designed to be useful for Arakwal joint managers



Pigface *Carpobrotus glaucescens* is used as a food plant at Arakwal National Park. Image: Norman Graham

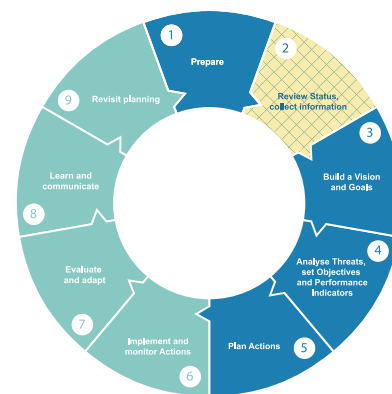


## 2. Review Status, Collect information

The status review stage involves bringing together relevant information about the species of concern, and its surrounding values.

The information gathered during for a status includes a historic account and present distribution of the species and understandings of species biology.

Importantly, this also includes defining the values of the species, and in this case, the species habitat and the values surrounding these. Factors important for planning, such as the conservation context should also be collated. Finally, information on threats, drivers of threats and constraints should also be compiled.



The structure, approaches and information collated to be used in the process should be set up in a way that enables **Green List Standard** evaluation to be carried out. Importantly, the process should collate and use traditional knowledge as much as possible, including understanding the relationships amongst people and the environment. In a cross-cultural setting, this stage should employ an effective collaborative processes to define values of importance and their threats, so that outcomes for conservation and cross-cultural decision making to be assessed.



### @ Arakwal

We shared knowledge and values of the Byron Bay Orchid and Dwarf Graminoid Clay Heath to assist with preparing information to be used for good joint planning and management in Arakwal National Park.

This highlighted the relationship amongst the Arakwal community and the orchid habitat and what effective joint management entailed. We talked about how Arakwal people have cared and used the landscapes around the orchid for generations.

We discussed the health of the orchid and clay heath habitat, what pressures are impacting on this landscape and the activities needed to make things better in the future.

Finally, we gathered relevant planning documents, including the management plan, operational plans and ecological assessments.



Midgem berries *Austromyrtus dulcis*, a food resource at Arakwal National Park. Image: Norman Graham

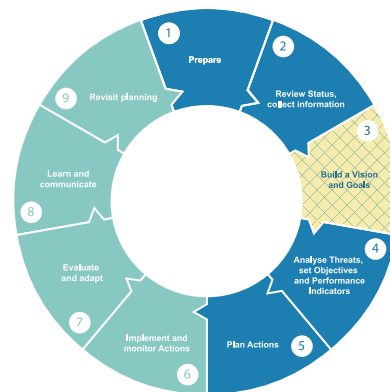


An elder catches a shrimp on Arakwal National Park beach. Image: Norman Graham

### 3. Build a Vision and Goals

An overarching vision is a short statement outlining peoples wishes for the future for a species, or in many settings, the species habitat and its surrounding values.

Goals sit under the vision, which reflect the specific outcomes that people would like to see for the species, and its surrounding habitat. Examples of goals might include to manage threats to the significant species and its habitat and to ensure cultural values are upheld. Goals may be quantitative and/or descriptive.



The process of defining a vision and the goals that sit under it should be iterative and collaborative, including input from Traditional owners, agency staff, scientists and broader stakeholders where appropriate. The process for defining values should be similarly collaborative. **Evaluation of this step is important to ensure the vision and goals reflect all views appropriately** (see Green List Criterion – Effective Management)



### @ Arakwal

A vision for the park has already been developed and is presented in the Arakwal management plan. We built upon this vision with a focus on the orchid and heath.

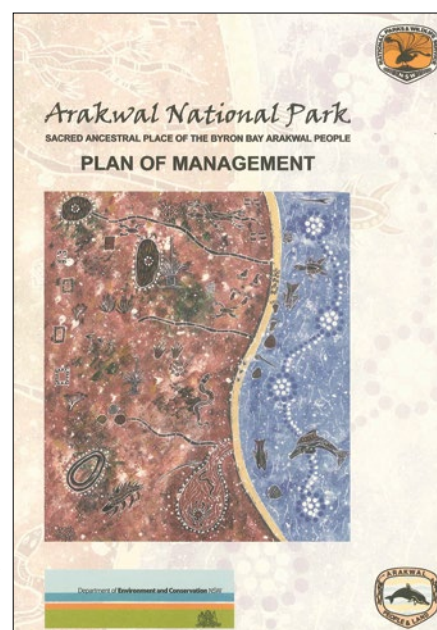
#### *Vision for Arakwal National Park from the Arakwal Bumberline Elders*

*"We want to see Country how it used to be. We want to continue to look after Country and want it to look after us. We want our people to be back on Country, caring for and using Country like we always have. We want to share parts of our culture with the wider community so they learn about and respect Country like we do. We want everybody to work together to keep Country clean and healthy."*

*Aunties Lorna Kelly (dec), Dulcie Nicholls and Linda Vidler, 2003*

The vision for the orchid and its surrounding habitat was that this species and place is in healthy condition into the future, and that the areas and its values are cared for, learned about and used by the Arakwal people.

As a group, we defined and organized the goals and values for the orchid and its habitat into detailed measurable categories based upon the three pillars of broad values that underpin the management plan: looking after country, using country and knowing about country. We used the existing management plan as a guide.



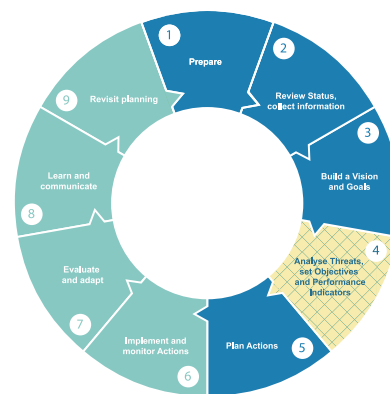
*Arakwal National Park Management Committee. 2007. Arakwal National Park Plan of Management. NSW National Parks and Wildlife Service, Department of Environment and Conservation, NSW, Australia.*



## 4. Analyse threats, set objectives and performance indicators

The standard purpose of this step is to list and analyse threats to the species of concern, and in the many cases, also the threats to its surrounding values. In some cases it may be suitable to rank threats to understand which are the most important.

For some values, a threat based approach may not feel appropriate. For example, if a value is 'knowledge and care of a species by the broader community' joint managers may prefer to focus on how to ensure the value exists is respected, expanded and realized, such as implementing a school education program to ensure knowledge and care is built and shared.



An indicator is something that can be measured to provide information on how well an objective or a value is going.

In a joint management setting, performance indicators should be developed to enable people to evaluate how well the objectives are being met and achieving goals, including for ecological outcomes and good planning and joint governance outcomes (see Green List criterion – effective management and successful conservation outcomes).



### @ Arakwal

A major concern is that the *Diuris* orchid could become extinct. Threats associated with the declining clay heath include: lack of fire; weed invasion; people trampling and dumping rubbish/green waste; encroachment of trees; erosion, storm water; feral animals; fragmentation and disturbance from pedestrian tracks.

Another major concern is *losing knowledge and history of use and connection* to the orchid and its surrounding habitat.

Finally, a concern is that indigenous community needs to be on country more than they have been - without this presence on country the values of this habitat can not be sustained.

We developed a traffic light system for measuring the success of decision making and management, where:

- Green = good joint management, happy to proceed with process
- Orange = more consultation needed to amend process
- Red = need to stop and re-evaluate and re-design

Surveys of plants and animals were also taken before and after cultural burns. This provides a baseline of information to enable comparison of how values are going before and after the implementation of a management action.



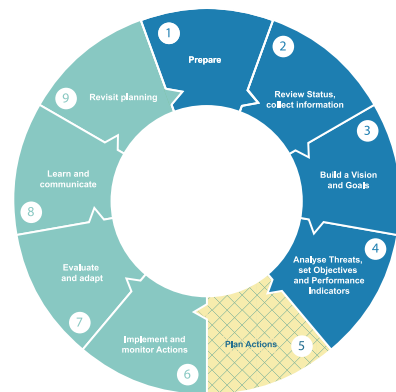
Working on country at Arakwal National Park.  
Image: Norman Graham

## 5. Plan Actions

This stage includes defining the actions that are needed to meet goals for each of the species, or values, and prioritising amongst them.

Actions can be prioritised using a range of approaches. Key to this effort is to acknowledge that given the limited resources (time, funding, knowledge), managers need to prioritise the most important actions.

The most important actions would be the ones that best achieve goals using available resources. Or, there may be actions taken to increase resources.



A way of measuring the benefit and resources required for an action should be developed to enable people to share and evaluate the choice of actions and their priority ranking.

The final set of prioritised actions should be the ones that are expected to meet the set of shared goals for the values as well as possible with the resources available. Input from the community and between joint managers should be used for developing and applying this approach.



### @ Arakwal

We identified 10 actions that are important to help manage all values, building from existing operational and management plans.

To compare the 'benefit' of actions, each participant was asked to allocate 5 dots for each value that are most important for each value, based on their own knowledge and understanding. We summed these dots to estimate the relative importance of each action for each value, giving all dots equal importance. Clusters indicated where most people felt actions were essential for particular values. The actions considered most important (summed across all values) were Indigenous engagement, fire and community engagement.

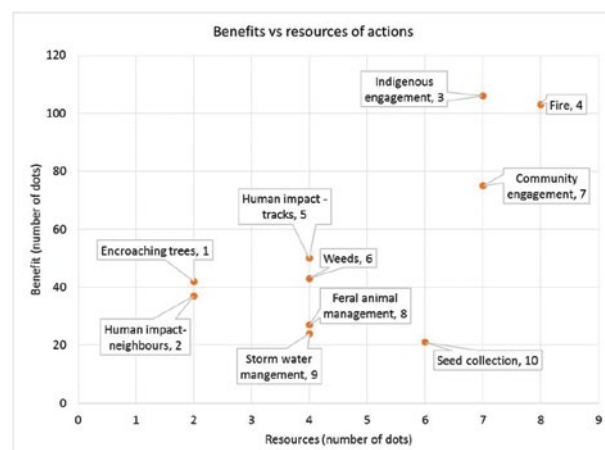
We estimated the amount of resources required for each management action under three categories: equipment/materials (resources for purchase, hire or to build), people (human resource time) and knowledge (information). For each resources category we allocated 1-3 dots for low, moderate and high resource needs.

● The process was given a green traffic light for good joint decision making

To the right, the chart shows ranks of actions in terms of the benefits and resources needed – where the highest 'return on resources' actions are the management of encroaching trees and human impacts, followed by Indigenous engagement and fire.



Workshopping to combine knowledge on priority actions for Arakwal National Park values. Image: Cathy Robinson



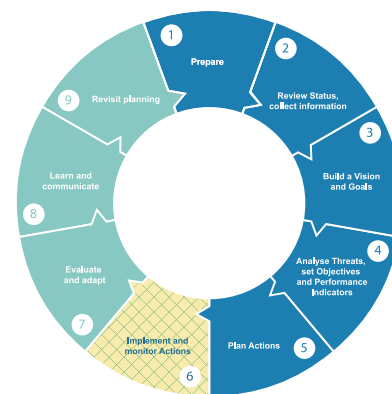
The estimated benefit (combined importance placed on each action) compared with resources (time, financial and knowledge resources required) for each action at Arakwal National Park.

Credit: Josie Carwardine

## 6. Implement and monitor

The actions that are decided upon need to be turned into projects through the development of an operational plan. The sequencing of actions is an important consideration in this planning, given the importance of some actions preceding others. The operation plan is then implemented and monitored, using best practice local protocols.

Using a calendar planning tool may be of assistance to define when and where actions are required to be implemented and monitored, and by whom.



A monitoring program should be designed to capture information about how well actions are contributing towards goals, using the performance indicators that have been identified in stage 4. Importantly this needs to take note of thresholds where an important change in the cultural-ecosystem quality, property or phenomenon, or where small changes in a cultural or environmental driver produce large responses in the cultural-ecosystem.

Participants should agree upon how this information can be used to trigger further actions. In cross-cultural settings this include triggers about the health of species and its habitat. It may also include triggers for the quality of the joint management itself.



### @ Arakwal

At Arakwal, priority actions supported, included: activities to bring people on country, the management of weeds and encroaching trees, harvesting of seeds and fruits, communication to reduce the impacts of neighbours and visitors, including track maintenance, and importantly doing a cultural burn.

These actions were incorporated into a seasonal planning calendar with two main purposes – to ensure the Arakwal community could interpret and support priority actions resourced in a given year and for communication of the joint planning process (see stage 8).

The heath was surveyed post fire, and sightings of the Byron Bay Orchid was recorded. Arakwal families were supported to run community events back on country to sustain cultural 'using country' values. There was an abundance of fruits to harvest. Engagement efforts were increased and evaluated to promote neighbour and visitor awareness and responsibility for the Park.

Planning for the cultural burn involves mapping the condition and pre-existing (yellow), modified (orange) and core (red) extent of the Graminoid Clay Heath Endangered Ecological Community.



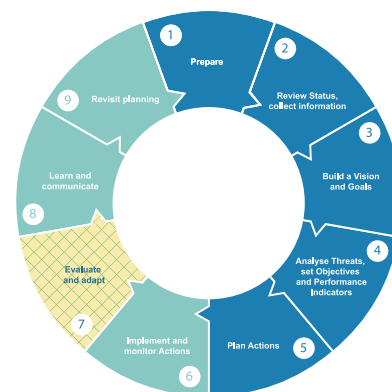
Aniba Kay keeps an eye on the clay heath caring for country burn. Image: Norman Graham



## 7. Evaluate and adapt

This stage involves evaluating the effectiveness of actions in terms of meeting goals and vision set for each of the species or other values (see step 3). In a cross-cultural setting this also includes evaluating the cross-cultural decision making process.

Ideally, the actions implemented should have helped to meet the shared goals and supported the vision, through managing threats to improve shared values.



The evaluation process should check whether key goals were met, or are on track to being met. In the case of shortcomings, the problems and challenges should be identified and reflected upon. For example, were their insufficient resources to implement all required management? Was some management not as successful as planned? What could be improved upon in the future?



## @ Arakwal

We adapted the four pillars of the IUCN Green List standard to a cross-cultural setting. The table below describes the important components of how the approach delivered cross-cultural governance, planning, management and outcomes.

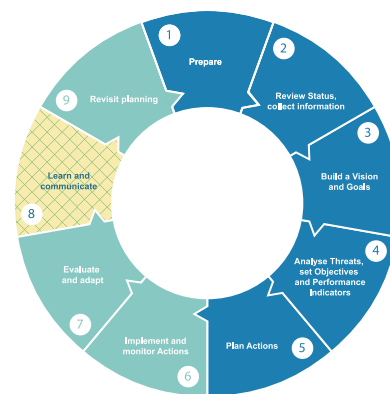
Strong joint governance		Collaborative design and planning	
Arakwal had a strong voice to guide how to use best available knowledge to guide decision- making	Arakwal guided who and how different partners would be involved	The significant values of the Byron Bay orchid habitat were negotiated in a collaborative way	Input from Traditional owners sought through on-country events and community summaries
	Arakwal-led research was monitored throughout the project		Input from relevant scientists to assess the health and ecological impacts
	Arakwal Board were kept informed and approved key activities		Input from relevant scientists to assess the health and ecological impacts
Effective and appropriate management		Successful cross-cultural conservation outcomes	
Worked together to monitor the impact of priority actions	For country – to manage weeds and tourists	Multiple forms of evidence used to demonstrate success of our work together.	Evidence from Traditional Owners The Board provided strong support for the burn based on information that shared with each member in an appropriate way.
	For Arakwal community – to ensure learning and back to country activities were supported		Evidence from Country surveys and visits to area showed health of country after actions completed
	For neighbours – to keep partners informed about proposed activities		

## 8. Learn and communicate

**Learning** involves that any aspects of the process that require improvement, are shared and acknowledged to allow changes to be made to the process for future planning. There may be different cultural perspectives on what has worked. Coming to a shared understanding of this is key.

**Communication** is ongoing throughout the entire planning process. This stage of the planning cycle helps identify specific communication products and approaches to help share recommendations and learnings can take many forms, including:

- report documents such as this one
- a seasonal calendar
- informal discussions
- formal communication programs



## @Arakwal

Learning processes are ongoing through good communication and collaborative knowledge sharing at Arakwal.

Arakwal managers have a strong focus on communication, amongst managers and the Arakwal community, including Traditional Owners, as well as with the broader Byron Bay community, such as outreach programs in schools and ongoing interactions with visitors and neighbours to the Park.

In addition to this report, we worked together to develop a seasonal planning calendar, as a communication and scheduling tool.

The calendar can be used to share an understanding of how management actions are scheduled throughout the year, taking account of seasons, opportunities, weather and traditional practices.



*Arakwal Seasonal Planning Calendar (front) Credit: Bundjalung of Byron Bay Aboriginal Corporation (Arakwal), NSW National Parks and Wildlife Service & CSIRO. 2019.*

*Seasonal planning calendar to guide joint management of significant species-the Byron Bay Orchid (*Diuris byronensis*) and Dwarf Graminoid Clay Heath. Arakwal National Park, Australia.*

## 9. Revisit planning

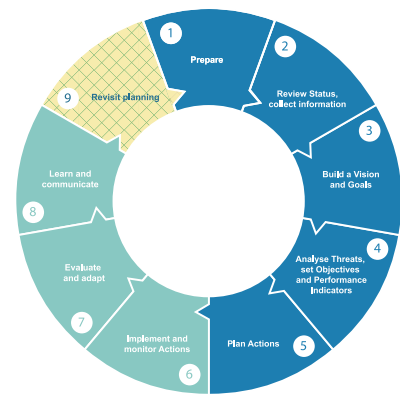
The revisit planning step is a connecting step returning the planner to be beginning of the process.

To assist with guiding the planning cycle into the future, we found it useful to identify key principles and processes for good joint management.

The process and principles connects the four pillars of the green list evaluation process, modified for a cross cultural setting.

Depending upon the specific planning task, planning may be revisited every year, or every 5, 10 and even 20 years.

The new plan should take account of learnings and adaptations identified throughout the previous planning stages.



### @ Arakwal

We identified key principles and processes for good joint management that can guide Arakwal through the complete cycle of planning when revisiting the planning process throughout the year, which can also apply the planning calendar shown in stage 8.

These follow a cross-cultural adaptation of the wording of the four pillars of the Green List:

- Strong joint governance
- Collaborative design and planning
- Effective and appropriate management
- Successful cross-cultural conservation outcomes



*Arakwal Seasonal Planning Calendar (back) Credit: Bundjalung of Byron Bay Aboriginal Corporation (Arakwal), NSW National Parks and Wildlife Service & CSIRO. 2019.*

*Seasonal planning calendar to guide joint management of significant species- the Byron Bay Orchid (*Diuris byronensis*) and Dwarf Graminoid Clay Heath. Arakwal National Park, Australia.*



## References

Arakwal National Park Management Committee. **2007**. *Arakwal National Park Plan of Management*. NSW National Parks and Wildlife Service, Department of Environment and Conservation, NSW, Australia.

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Bundjalung of Byron Bay Aboriginal Corporation (Arakwal), NSW National Parks and Wildlife Service & CSIRO. **2019**. *Seasonal planning calendar to guide joint management of significant species- the Byron Bay Orchid (*Diuris byronensis*) and Dwarf Graminoid Clay Heath*. Arakwal National Park, Australia.

## Acknowledgements

We acknowledge the Arakwal Traditional Owners, past present and future. This work was supported by Traditional Owners and other experts in the values and management of Arakwal National Park, the NSW Parks and Wildlife Service, the NESP Threatened Species Hub and CSIRO.



Arakwal managers and decision makers receive a CSIRO Indigenous engagement award. Image: Cathy Robinson



CSIRO researchers Josie Carwardine and Cathy Robinson, at Arakwal National Park. Image: Norman Graham

CSIRO, Bundjalung of Byron Bay Aboriginal Corporation (Arakwal) and NSW National Parks and Wildlife Service. 2019. Effective cross-cultural conservation planning for significant species: best practice guidelines developed to care for the Byron Bay Orchid habitat at Arakwal National Park, Australia.

**Further information:**

<http://www.nespthreatenedspecies.edu.au/>

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