Building Language, Literacy, Numeracy, and Digital Skills with Aboriginal Rangers in the Northern Territory

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Abstract

Ranger programs across North Australia are a success story, providing important environmental, social and cultural services that help people get back out on their Country to do vital work, such as carbon abatement fire programs, weed and feral animal management, cultural site maintenance, and Learning on Country programs for youth. Many rangers struggle with the English language, literacy, numeracy and digital skills needed to participate effectively in work and training. The Batchelor Institute Conservation and Land Management team have developed effective language, literacy, numeracy and digital skills programs through Foundation Skills Training being delivered across the Northern Territory top end and recently Uluru. With extensive knowledge and experience in ranger work, trainers can develop and adapt language, literacy, numeracy and digital skills programs that are contextualised to the work of rangers and meet their needs as well as those of their host organisations. Secure, targeted funding can provide long-term support to further develop these programs and better prepare and support learners with training and work. This document outlines existing work and how it can be expanded across the region.

Keywords: *Aboriginal rangers, Australian Core Skills Framework, digital skills, foundation skills, language skills, literacy, numeracy*

Overview

For the past few years, the Conservation and Ecosystem Management team at Batchelor Institute has been successfully delivering literacy and numeracy/foundation skills programs to help Aboriginal rangers across the Northern Territory with workplace language, literacy, numeracy and digital skills. These programs are conducted in the locations marked in red on Figure 1, as well as recently for the Mala Rangers at Uluru.

We started this work in recognition that many rangers struggle with the language, literacy, numeracy and digital skills needed for ranger work and for getting the most out of training. We recognise that not only do rangers need some level of English language, but that each area of work has its own language which makes it more complicated for people for whom English is not a first language (e.g., maritime language for coxswains, scientific languages, legislative languages and terminology). Underpinning these languages are assumed world views, which need to be acknowledged explicitly and alongside the Indigenous knowledges, languages and world views that the learners bring to work and training.

Figure 1: *Map of the Existing Sites of the Program*
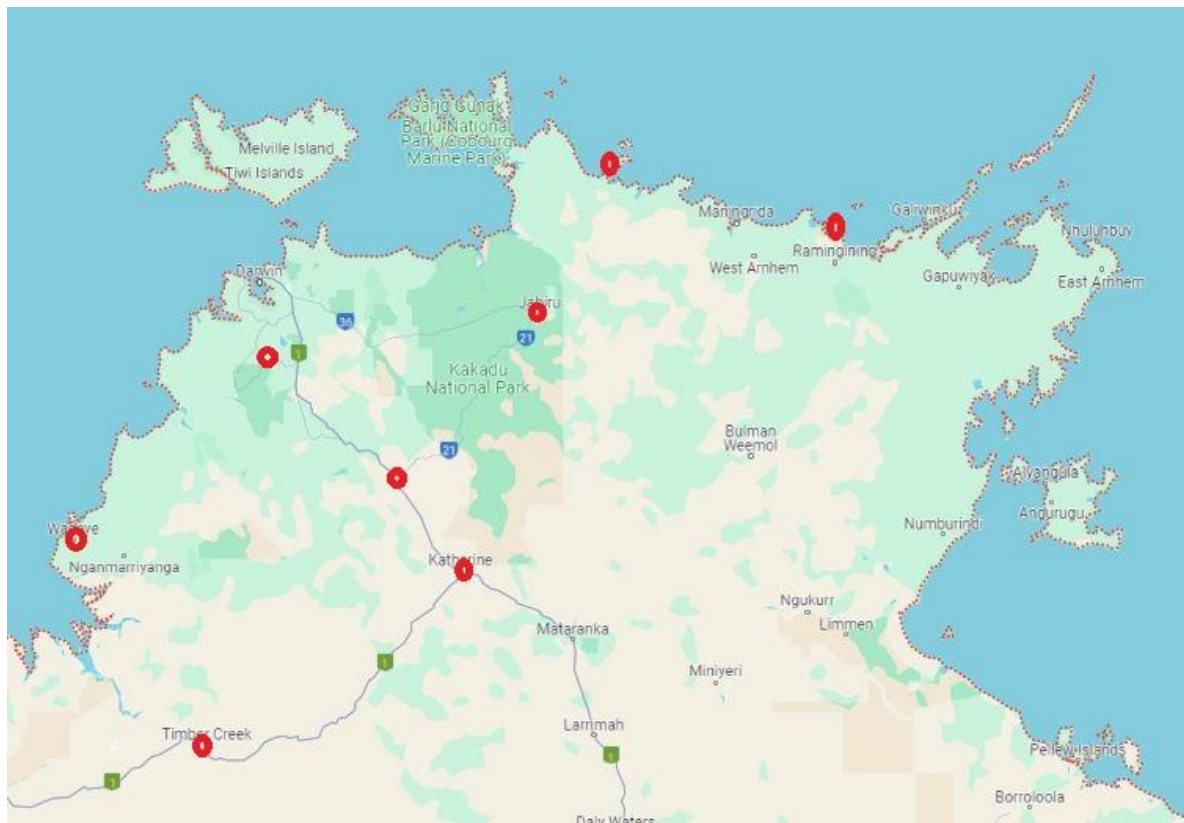
Note: The locations from left to right are Wadeye, Timber Creek, Batchelor, Pine Creek, Katherine, Kakadu, Warruwi and Milingimbi.

Building language, literacy, numeracy and digital skills enables rangers to understand more about what they are doing and why they are doing it. Having a better understanding of what they are doing inspires greater engagement in work and training, which in turn improves motivation and opportunities to build language, literacy, numeracy and digital skills in real-world applicable contexts. This virtuous circle leads to improved worker retention, participation and workplace productivity.

As an example, many rangers across the top end are involved in carbon abatement fire programs. Organisations get funding via carbon credits to reduce annual emissions from wildfires through rangers doing early *cooler* burning and other measures to reduce late season destructive fires. Underpinning these projects is a need to understand a range of concepts and skills: climate change, photosynthesis, vegetation mapping, what are fossil fuels, how wildfires and burning fossil fuels release emissions, how emissions are measured, and all the numeracy required (e.g., graphs, mapping, averages, multiplication, funding).

Helping rangers understand all of these promotes greater engagement, participation, leadership and ownership of projects. Being engaged in these projects provides immersion in an environment of language, literacy, numeracy, communication and use of digital technology, making language, literacy, numeracy and digital learning relevant and useful. Learning is consolidated by ongoing involvement.

We have been delivering language, literacy, numeracy and digital skills training using the Foundation Skills training package, *FSK10119 Certificate I in Access to Vocational Pathways.* The name *Foundation Skills* is very apt; it is exactly what is needed: foundations, which are too often overlooked in work and training. Figure 2 illustrates this type of training. It shows Thamarrurr

Rangers in Wadeye weighing wood before and after burning. They are investigating the question: Where does the lost weight go?

Figure 2: *Thamarrurr Rangers Weighing Wood Before and After Burning*

Projects such as this require long-term commitment to build trust and relationships. We work very closely with project partners to design training that meets the needs of rangers and their host organisations, and they include:

- NLC – Northern Land Council;
- MOPRA – Milingimbi Outstations Progress Resource Aboriginal Corporation;
- TNRM – Territory Natural Resource Management;
- Djurrubu Rangers – Gundjeihmi Aboriginal Corporation;
- Thamarrurr Development Corporation, Wadeye;
- Mala Rangers, Uluru – Parks Australia.

Australian Core Skills Framework: A Framework for Monitoring Status and Progress

Language, literacy and numeracy programs are guided by, and benchmarked against, the Australian Core Skills Framework (Department of Employment and Workplace Relations, 2020). This is

> *a tool which assists both specialist and non-specialist English language, literacy and numeracy practitioners describe an individual's performance in the five core skills of learning, reading, writing, oral communication and numeracy.*

> *It provides a consistent national approach to identifying and developing the core skills in three diverse contexts: personal and community; workplace and employment; and education and training. In particular, it offers:*

> - *shared concepts and language for identifying, describing and discussing the core skills*
> - *a systematic approach to benchmarking, monitoring and reporting on core skills performance. (Department of Employment and Workplace Relations, 2020)*

For a full explanation of the Australian Core Skills Framework and how it works, go to the Department of Employment and Workplace Relations (2020) webpage: Australian Core Skills Framework.

Many rangers in the Northern Territory communities operate at Pre-level 1 to Level 1, the lowest levels of the framework. Learners at these levels require high level structured support, highly familiar contexts, and concrete tasks with a single step (Department of Employment and

Workplace Relations, 2017). Our language, literacy, numeracy and digital skills programs are targeted at supporting rangers to build from Pre-level 1 to Levels 1 and 2. Table 1 shows the progression performance indicators for those levels.

Table 1: *An Overview of the Key Performance Variables for Pre-Level, Level 1 and Level 2 from the Australian Core Skills Framework*

LEVEL	SUPPORT	CONTEXT	TEXT COMPLEXITY	TASK COMPLEXITY
Pre-level 1	• guided by an expert or mentor • highly structured support • modelling	• familiar contexts • concrete and immediate • restricted range of contexts	• simple, short texts • explicit purpose • limited and personally relevant vocabulary	• concrete tasks with a single step • includes copying, naming, matching, limited ordering, simple recognising
Level 1	• working alongside a mentor • prompts and advice provided	• highly familiar contexts • concrete and immediate • restricted range of contexts	• short and simple • highly explicit purpose • limited, highly familiar vocabulary	• concrete tasks of 1 or 2 steps • includes locating and recognising
Level 2	• may work with a mentor • support available on request	• familiar and predictable contexts • limited range of contexts	• simple familiar texts with clear purpose • familiar vocabulary	• explicit tasks with a limited number of familiar steps • includes identifying, simple interpreting, simple sequencing

Source: Based on Department of Employment and Workplace Relations (2017)

A key objective is for the rangers to see themselves as learners and gain confidence to have-a-go, therefore opening doors for building skills and experience. The Australian Core Skills Framework allows us to get an idea where learners are at, and how they are progressing with training.

We recognise that this framework is focused towards English language and concepts. At Batchelor Institute, we take a both-ways approach to language, literacy, numeracy and digital skills teaching, by developing shared languages around work concepts, thus building Western and Indigenous ways of understanding side-by-side. We start by recognising and building on learner identity, their background, experiences, goals, aspirations and challenges. We aim to make the training fit the learner, not the learner fit the training. Having ranger coordinators, managers and support staff also understand or at least be aware of this framework, and where their workers are at, is highly beneficial for their organisations to help rangers progress in a sequential manner and not be overwhelmed by unrealistic expectations.

Foundation Skills Training Packages

As well as the foundation skills described above, there are *foundation skills training packages* that are designed to address and complement learning at different levels, from Pre-level 1 and beyond. These include:

- FSK10119 Certificate I in Access to Vocational Pathways;
- FSK10219 Certificate I in Skills for Vocational Pathways;
- FSK20119 Certificate II in Skills for Work and Vocational Pathways.

The units are adaptable to different contexts. The Batchelor Institute Conservation and Ecosystem Management team have been delivering FSK10119, contextualised around ranger work, as an introduction to conservation and ecosystem management training. It is a chance to get to know learners, identify their interests, goals, and Australian Core Skills Framework levels. It provides an opportunity to introduce and explore foundational core skills and help people enjoy learning before having to apply the skills to more complex workplace tasks.

For example, numeracy units, such as *FSKNUM003 Use whole numbers and halves for work* and *FSKNUM004 Use basic and familiar metric measurements for work,* provide a scaffolded introduction to doing tasks such as mixing chemicals, 2-stroke or fire bug fuel, and related conservation and ecosystem management units. The foundation skills units are delivered as an introduction or alongside vocational education and training (VET) units, allowing us more time to help learners explore and play with numeracy, to take away the fear many people have of maths, and to have the confidence to have-a-go. When learners are ready, we can begin to apply these skills for workplace tasks and VET units, such as *AHCCHM201 Apply chemicals under supervision.*

Learners use skills to create documents like the ones in Figure 3. Creating their own documents or resources from scratch, rather than just filling in templates or answering questions, provides time and opportunities to think, explore and question more deeply, and uses a variety of core skills: reading, numeracy, digital. The learners create a resource they are proud of and can hang in the workplace for future reference.

Figure 3: *Two Examples of Student Work*

The *FSK10119 Certificate I in Access to Vocational Pathways* course is very useful for providing some structure for training and introducing workplace language, literacy, numeracy and digital skills. Without ongoing opportunities to practise skills with support and mentoring, the skills can be lost. Consolidating skills takes time and there is a need to use them regularly before learners are ready to move on to higher level courses.

Monitoring Improvements in Core Skills: Pre-Training Assessment

LLND projects aim to improve levels of one or more of the core skills over time. To document this, we need a pre- and ongoing assessment process and tools to build an Australian Core Skills Framework profile, a picture of levels across the five skills. The standard way of doing this is to have a test that progressively gets harder until the learner cannot do anymore, and the levels are scored against this progress. There are many problems with doing this sort of testing, especially for remote learners for whom English is not a first language.

As Table 1 shows, language, literacy, numeracy and digital skills are inherently linked to context, especially at the lower levels of the Australian Core Skills Framework. Finding standardised tests that create fair and equal contexts is virtually impossible. Asking questions using traffic lights, fire trucks, stop signs, cafes and all sorts of common city features may be alien and unfamiliar to remote learners who do not see these in their communities. With the move to using phones for so many tasks, other common themes for language, literacy, numeracy and digital exercises, such as analogue clocks and calendars, are becoming less familiar.

The digital Pre-Training Assessments I have sampled are online and require access to good Internet, which is often not available in remote communities. Learners need an email account to get a link, but this is something that many do not have and would never use again. Setting this up takes time and effort and isolates learners. Once they get to the test, there are several steps to click through before they start: agreements, terms and conditions requiring high level English comprehension. Doing all this is harder than the test, and most learners we work with would not be able to get through this process. The tests start at a high level and get easier if you get things wrong. Failing from the first step is not the way we want to build confidence and engagement.

Many of the learners we work with have limited English, are shy with new people, and nervous to have-a-go. Some are very young. These characteristics can often be mistaken for low level communication and other skills, despite the fact they are often fluent in multiple languages. There have been many times in my experience when it has taken a few days for people to start to be confident to demonstrate their skills at higher levels than originally assessed.

The concept of testing and seeing where people fail is against all the reasons we do this training: trying to build skills and confidence to have-a-go, and to feel supported and culturally safe. We aim to remove the element of testing in this way. The levels of the Australian Core Skills Framework are worked out through the process of developing a learning plan, where learners can write or draw their responses and get help as needed. Through these conversations and exercises, we build a profile of levels in oral communication, reading, writing and learning. We then introduce supported numeracy exercises and further reading and writing exercises, as needed, to complete the profile.

This strength-based approach incorporates assessment into introductory training in a constructive way that avoids confronting learners, especially new learners, with a harsh pass/fail paradigm of testing. We build on existing skills to encourage confidence and willingness to participate and learn.

Foundations Skills for Rangers

Table 2 demonstrates some of the areas where core skills are needed for ranger work. Work tasks usually involve several skills. For example, following herbicide mixing instructions from a label requires reading and numeracy skills, as well as learning skills, to show initiative or to seek help or resources as needed.

Table 2: *Foundations Skills for Rangers' Work*

Foundation skills	Application
Oral communication	Presenting at forums and conferences Presenting to groups: Tour guide, talking to school groups Participating in team meetings and planning Reporting work outcomes, problems, issues
Reading and writing (often go together)	Labels, signs, maps, manuals, training materials, timesheets, reporting apps, work documentation, legal regulations, work contracts
Numeracy	Mixing herbicide, 2-stroke, bug fuel Reading gauges, signs Recording: Timesheets, chemical use, marine debris Mapping, distances, areas Timesheets, plans and dates Budgets
Learning	Developing learning goals, seeking out support, recognising and addressing barriers, taking responsibility for learning
Digital	Mapping, GPS, reporting apps, digital gauges, NAFI (fire mapping and reporting)

Project-Based Implementation of Language, Literacy, Numeracy and Digital Skills Training

Foundation skills training is contextualised around ranger work, and this varies from group to group. The following description gives an overview of how training develops to meet the needs of the group.

We start with developing learning plans, as described above, exploring their work and learning, then move into general numeracy using worksheets. We describe these exercises as warm-ups for the brain. Most rangers have not done any numeracy like this for years. In our experience, they love the maths, coming to it from a place where it is practical and useful for work. This is unlike school, where many were not engaged or interested, and could not relate the learning to their everyday lives. The satisfaction and pride of completing worksheets and understanding content is very evident.

From basic number patterns and exercises, we move to units of measurement and conversions from grams to kilograms, metres to kilometres, and so on. We use workplace tools, such as measuring jugs, spray tanks and scales, to bridge bookwork with practical application. Figure 4 shows numeracy in practice. In particular, Wagiman and Wardaman rangers in Katherine are doing foundation skills training around weed and chemical use.

Figure 4: *Wagiman and Wardaman Rangers Doing Foundation Skills Training Around Weed and Chemical Use at Katherine*

Reading and writing skills are further developed by exploring workplace resources, such as field guides, signs, chemical labels and standard operating procedures, and employment documents, such as codes of conduct, timesheets, and terms and conditions. Figure 5 shows rangers sharing plant knowledge at Uluru.

Figure 5: *Sharing Plant Knowledge at Uluru*

Digital skills are practised using computers and tablets. Google Earth is a great tool for learning computer skills, such as left and right, click, scroll and drag, while exploring Country. Creating tracks and points for places they know builds the skills required for mapping fire lines and points later.

Rangers use a variety of tablet applications for work, such as monitoring biodiversity, mapping weeds, and doing vehicle checks. It is a common request from ranger organisations to help rangers engage more with this digital technology. Figure 6 shows rangers using tablets for mapping and reporting biosecurity information.

Figure 6: *Creating Maps in Google Earth and Using Tablets for Reporting Biosecurity*
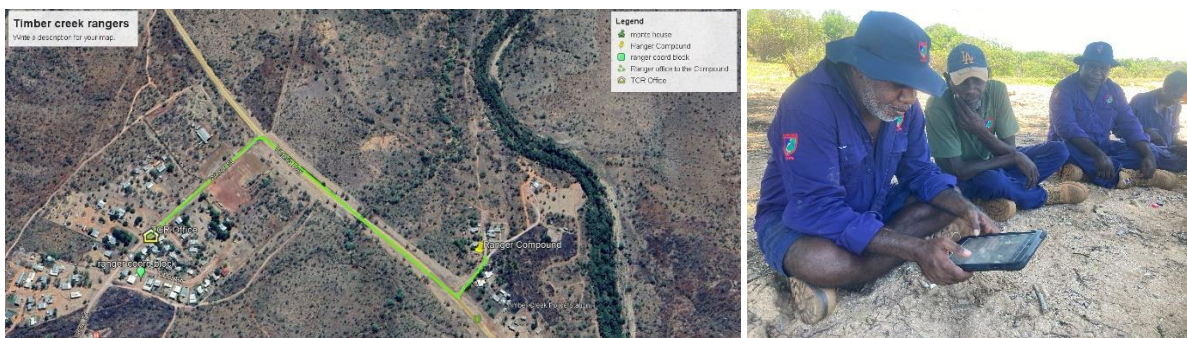
To develop communication skills, rangers regularly present their work to build confidence in speaking. This also helps to consolidate knowledge, by having to explain it to others. This can be through class presentations or the use of a camera to make short videos, as in Figure 7.

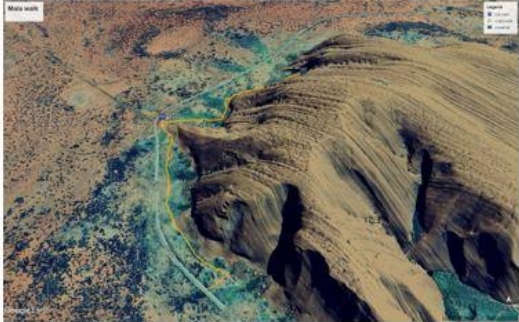**Figure 7:** *Rangers Presenting to Classmates*

Bringing it all together into a poster, a work report, a PowerPoint presentation or a movie creates a valuable resource for the workplace, and holistically integrates all core skills and digital skills. Figure 8 shows some examples of how we do this.

This foundation skills training gives rangers time and skills to reflect and report on their work and livelihoods, something that does not often happen in the day-to-day busyness of ranger work and trying to meet deadlines. The foundation skills training provides a great introduction to a lot of these skills and concepts. Ongoing mentoring and support are needed to consolidate these learnings and build them into practice.

Figure 8. *Examples of Student Work*

Future Language, Literacy, Numeracy and Digital Skills Projects

Batchelor Institute has been successful in winning [Skills for Education and Employment (SEE](#)) funding for the Northern Territory top end region (see the green shaded area in Figure 9). This is an Australian Government program that has "*the aim of improving access to training for all adult Australians seeking to build their language, literacy, numeracy and digital literacy skills*" (Department of Employment and Workplace Relations, 2024).

Figure 9: *The Top End Region of the Northern Territory*
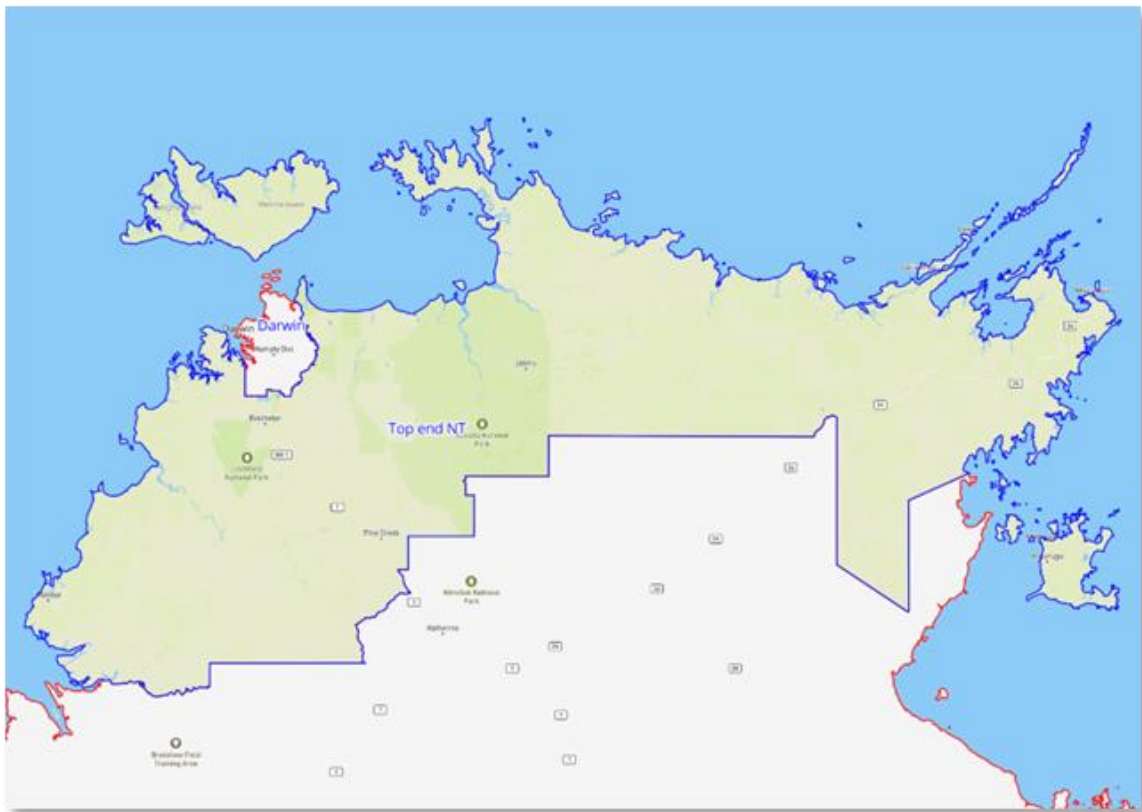
The funding will enable us to provide ongoing support for rangers and enable them to build on these skills and be willing and able to participate more effectively in larger, long-term projects with the underpinning training that is needed. Such projects include:

- Fire/carbon projects:
  There is a lot of underpinning knowledge needed around climate change, emissions, and the role of burning. Rangers also need numeracy, mapping, communication and digital skills, as well as ongoing skills in fire planning, reporting and communicating, and practical skills to do the work.
- Tourism and presenting to an audience:
  Whether for speaking to masses of tourists or small school groups or presenting at conferences or anywhere in between, many rangers want to be more confident about speaking up. This involves building confidence to talk about what they do. Hearing about tips and tricks to overcome shyness and learning to not be overwhelmed by it all are useful strategies to create opportunities for employment and networking, to demonstrate pride in sharing culture, and being recognised for who they are and what they do.
- Healthy Country Planning:
  Engaging with Healthy Country Plans and making them language accessible, adaptable and dynamic for rangers is important, so that plans do not get left on the shelf. These plans often

underpin ranger work and their organisations' priorities, but they can quickly become dated if not applied and reviewed. The more understanding rangers have of these plans, the more they can engage and have a say in how plans are implemented and developed over time to meet the needs of their workplace and communities. These skills also apply to other plans, such as regional weed plans, fire plans, and cultural site management plans that usually sit under Healthy Country Plans. It is important to make these plans accessible, dynamic and reflexive to changing needs, conditions and people, by keeping them current and useful.

- Coxswains:
  Sea rangers are required to do some level of coxswains' training to operate boats at a professional standard and this requires Level 1 or Level 2, depending on job requirements. This is a highly complex course, full of maritime language and concepts, numeracy, laws, regulations and standards, and it has the requirements of closed-book assessments. A lot of pre-training work is needed to get rangers ready for these courses.

We are developing applications for Round 2 of Skills for Education and Employment funding, to extend the project to the southern areas of the Northern Territory. The locations for which funding has been applied are indicated in the white shaded area of Figure 9. Future projects will start with the basic language, literacy, numeracy and digital skills introduced in the foundation skills training we are currently doing. Building a long-term relationship with learners is needed to build their skills and trust, to be open to support and to consolidate learning. Training needs to be flexible to meet changing needs and priorities as learners grow in confidence and willingness to engage more deeply with work.

Secure, targeted language, literacy, numeracy and digital skills funding, such as Skills for Education and Employment, with good industry partnerships will enable us to plan and provide the long-term support and capacity-building needed to help rangers to build skills and take on more ownership and leadership of these important environmental, social and cultural projects. These projects provide much needed employment and education opportunities for rangers, helping people access Country and cultural sites, and to look after Country. The resources, such as books, movies and posters, that we create in doing projects will provide much needed resources for community, schools and young rangers, and have a flow on effect to building language, literacy, numeracy and digital skills.

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