



Knowing Nature



2016 - 2020
SCIENCE & PLANNING
STRATEGY

www.tasland.org.au

TLC 2050 Vision

Our vision is for Tasmania to be a global leader in nature conservation.

TLC 2050 Mission

In partnership with others the TLC will:

1. Take a leadership role in building a landscape-scale approach to conservation including a world-class system of reserves.
2. Demonstrate excellence in management for nature conservation.
3. Contribute to Tasmania becoming a centre for knowledge for nature conservation and planning.
4. Develop and implement innovative mechanisms for achieving nature conservation.
5. Provide opportunities and mechanisms for communities and individuals to achieve nature conservation.
6. Demonstrate organisational leadership through exceptional governance, a positive working environment and financial sustainability.

Cover image of flame robin by Heath Holden

The Role of Science and Planning

The TLC's growth from humble beginnings to becoming one of Tasmania's largest private landowners is premised upon rigorous science, strong entrepreneurial spirit and the knowledge that protecting nature is critical to our own future.

TLC is now in the enviable position of being able to demonstrate that its conservation work is underpinned by best practice science and planning. Property acquisition is based on robust criteria for achieving a world-class reserve system, reserve management meets international standards by being adaptive and well planned, and conservation research is driven by the need to deliver tangible on-ground benefits.

Current responsibilities of TLC's Science and Planning Team are to:

- Assess potential new properties and maintain the decision-support tools underpinning their acquisition and conservation management.
- Prepare and review management plans and annual reserve reports and contribute to their implementation.
- Undertake long-term ecological monitoring across TLC reserves and other priority lands and regularly report on their health and condition.
- Deliver applied scientific research on and off TLC reserves and encourage others to do the same.
- Help develop and drive strategic projects harnessing in-house and external expertise.
- Assist the Conservation Science and Planning Advisory Council meet its terms of reference.
- Provide wider organisational support as and where needed.

This strategy focuses on three areas where TLC's Science and Planning Team can contribute most towards the organisation achieving its 2020 strategic plan. These focus areas are:

Demonstrate Excellence in Protecting Nature: Ensuring our processes for acquisition, planning and management of our conservation areas, demonstrate world's best practice.

Strengthen Our Partnerships: By strengthening our partnerships we will benefit from the expertise of others and achieve more for conservation a lot sooner.

Leadership: For Tasmania to be a global leader in nature conservation, we need to drive innovative solutions to solve existing problems and new challenges.

These focus areas are discussed in detailed and where the goals and strategies relate directly to TLC's Strategic Plan 2016-2020 then they are shown in brackets.

1. Demonstrate Excellence in Protecting Nature

TLC's permanent reserve estate is the cornerstone of the organisation and it is imperative that we continue to manage these areas and their inherent natural values to the highest standards. The TLC uses the internationally recognised *Open Standards for the Practice of Conservation* to help guide its management and we continually strive to improve every aspect of our performance in planning, managing and communication. Keeping these plans up-to-date and reflecting our performance is essential. As our reserves are being visited more frequently for science and pleasure it is also imperative that we move to incorporate community, commerce and cultural values into our planning and monitoring processes. To do this we need to develop measures and approaches that reflect these needs, but do not compromise natural values.

TLC's ecological monitoring program is a critical component of our land management as it measures the condition and health of our reserve and helps inform future management. This monitoring program must be maintained and is now at a stage where bio-acoustic sampling could be included to the current dataset to expand our knowledge on a wider range of fauna. This could be achieved by establishing a benchmark series of automated sites integrating photo and acoustic monitoring with climatic variables and could include for example 'real-time public viewing' to stimulate greater interest and understanding of reserve values.

Responding to time-critical issues, especially priority threats is foremost on our mind. There are several programs currently underway to improve the status of threatened species on TLC reserves and to expand our efforts in invasive species management, fire ecology and adaptation pathways for climate-sensitive species. Our work on the Clarence Galaxias, Cider Gum and carnivore monitoring on Five Rivers Reserve, feral cats and fallow deer, threatened plants, Ptunarra Brown Butterfly and ecological burning on the Vale of Belvoir are but a few of the important applied research programs underway which must be continued and supported.

TLC's management and work plans are reviewed annually and reserve reports are produced to show what has been achieved and the effectiveness of our management. These plans and reports together with our scientific papers are essential documents, however by adopting more contemporary ways of communicating such as 'dashboard' reporting and using the 'Econd' to show trends in reserve health or using other multi-media formats we could publicize our achievements in a much more engaging way and become more accessible to a broader audience.

DEMONSTRATE EXCELLENCE IN PROTECTING NATURE	
GOALS AND MEASURES	ACTIONS
<p>Goals: Best Practice Reserve Planning</p> <ul style="list-style-type: none"> • Adaptive reserve management is effective and being reported annually (G2.1) • By 2017 cultural, community and commercial benefits of nature conservation are being measured. (G5.3) <p>Measures:</p> <ul style="list-style-type: none"> • By 2018 all TLC permanent reserves have Open Standards management plans that are being implemented, reviewed and adapted annually (S2.1). • Indices for community, cultural and commercial inclusion are in place by 2017. • Two new or existing management plans are being prepared or reviewed each year. 	<p>Actions:</p> <ul style="list-style-type: none"> • Develop simple, globally costed management plans prior to acquisition of new permanent reserves and ensure all teams have input into their development. • Develop indices for the measurement of the cultural, community and commercial benefits of nature conservation (S5.1) and integrate these into TLC's strategies, plans and procedures (S5.2).
<p>Goals: Expand Reserve Monitoring</p> <ul style="list-style-type: none"> • By 2020, the health of 90% of identified high priority targets on TLC permanent reserves are in very good condition and stable or trending upward (M2G2.1.2) • By 2020 a subset of automated base stations are contributing to reserve knowledge. • Continue implementing the TLC's long-term ecological monitoring program (S2.2). <p>Measures:</p> <ul style="list-style-type: none"> • Ecological monitoring is undertaken on 3 reserves per year with data collected tri-annually and reported within 6 months of collection. • By 2018, the utility of acoustic monitoring in informing reserve health is resolved. 	<p>Actions:</p> <ul style="list-style-type: none"> • Develop a prioritisation metric for ranking management and threat strategies based on the importance of reserve conservation targets. • Develop acoustic measures for fauna and embed these into our ecological monitoring program. • Establish protocols for a subset of automated benchmark sites to collect photo, acoustic and other environmental data. • Undertake an independent review of TLCs monitoring program by 2017 and implement the recommendations. • Centralise and streamline TLC's future data needs and identify options for addressing.
<p>Goal: Address Priority Targets</p> <ul style="list-style-type: none"> • By 2020 all high priority reserve management strategies identified in management plans will be resourced and implemented annually (G2.1.1) 	<p>Actions:</p> <ul style="list-style-type: none"> • Continue mitigation research to improve security for reserve targets. • Help develop ecological burn prescriptions for our reserves, with a priority being grasslands. • Implement the project plan for the Clarence

<p>Measures:</p> <ul style="list-style-type: none"> • By 2020, the area of occupancy of the Clarence galaxias has increased. • By 2018, Five Rivers carnivore monitoring is informing feral cat management. • By 2020, the health and condition of threatened grassland values at the Vale of Belvoir are maintained or improved. • By 2019, the ecological burn requirements of our reserves are known and burn plans are in place or being implemented. • By 2020, adaptation pathways or refugia for climate-risk species are known and, resilience plans are in place. • By 2018, data on invasive fauna species on TLC reserves is being routinely collected. 	<p>galaxias on Five Rivers Reserve.</p> <ul style="list-style-type: none"> • Identifying species population trends on Five Rivers to inform feral cat management. • Continue monitoring the impact of ecological burning on the Vale of Belvoir. • Identify values on TLC land most at risk from climate change especially high altitude alpine species such as dwarf conifers and cider gum. Prepare adaptation pathways or areas of refugia for these values and practical ways of implementation. • Continue assessments on invasive fauna e.g. feral cats, fallow deer, European wasps to help inform reserve and wider management options.
<p>Goal: Communicate More Effectively</p> <ul style="list-style-type: none"> • Private protected lands used to support research for effective conservation management, generating three high level communications annually (G3.1.3). <p>Measures:</p> <ul style="list-style-type: none"> • By 2017, an Econd trial determines its application and adoption in reserve reporting. • By 2017 dashboard reporting is adopted for communications on the web. • Three high level communications are delivered annually to diverse audiences. 	<p>Actions:</p> <ul style="list-style-type: none"> • Maintain an inventory of reportable values on TLC's reserve for dashboard reporting and popular communications. • Use annual reserve reports and scorecards to demonstrate the success of our adaptive management and value of monitoring. • Trial the 'Econd' to determine its utility as a measuring and reporting tool. Apply its use more widely if found effective. • Increase the use of multi-media to report on the effectiveness of our applied science program.

2. Strengthen Our Partnerships

The Science and Planning Team have built strong partnerships across the professional community to help drive our conservation research needs. It's time to grow these partnerships to expand our knowledge, extend our influence and work more efficiently. Our strategies for achieving this are: 1 - expand landholder participation in reserve monitoring, 2 - grow our citizen science program, and 3 - strengthen our professional partnerships.

1. Tasmania's private reserve estate comprises significant places, owned and managed by landholders who are committed to nature conservation. By teaching and encouraging these landholders to do their own ecological monitoring on their own land they can contribute vital information on reserve health and condition across the broader Tasmanian landscape. To achieve this we have set a goal of installing ecological monitoring across 10% of Tasmania's private reserve estate by 2020 which equates to about 80 private properties on 11,000 ha.
2. In 2015 the Science and Planning Team launched its citizen science program by enlisting volunteers to help score the many thousands of flora and fauna photos collected during monitoring. This program is generating enormous benefits in terms of time and labour efficiencies and has given volunteers an opportunity to become more experienced in scientific methods which they really enjoy. It's time to 'brand and expand' this program and harness the power of the crowd! By using a web-based portal like 'Zooniverse' or similar we can attract volunteers remotely to help speed up our image processing and engage more people in our work. It does not mean our in-house team of volunteers is redundant; it expands our opportunities to derive more information from the data we collect.
3. Our professional partnerships with like-minded organisations continue to grow but these are often informal or ad-hoc making it difficult to realise the expectations of all parties involved. TLC's research program which was developed to manage internships, graduate research associates and institutional partnerships, needs to be formally adopted and embedded into TLC's policies and procedures. Our Masters Internship Program with UTAS would benefit from a formal arrangement and be expanded to attract students from other faculties. In turn, we need to maintain a list of spade-ready projects to ensure our most urgent needs are identified. We must also strengthen our partnerships with other mainland and overseas research institutions like Conservation International and The Nature Conservancy, to gain the benefit of their wider global experiences and even explore the opportunity of staff exchange. TLC's Science and Planning Council is a collective of professionals who provide guidance and specialist advice on the organisation's science-related issues. It has exceptional scientific expertise and is well equipped to progress major issues and drive scientific thinking locally, nationally and internationally. By reviewing their terms of reference and providing greater opportunities for their involvement, we can benefit more from their experience and promote a wider range of conservation issues with credibility.

STRENGTHEN OUR PARTNERSHIPS	
2020 GOALS and MEASURES	ACTIONS
<p>Goal: Expand Landholder Participation in Ecological Monitoring</p> <ul style="list-style-type: none"> • Citizen science monitoring across 10% of Tasmania's private reserve estate by 2020 (G3.1.2) <p>Measure:</p> <ul style="list-style-type: none"> • A 2% increase in landholder monitoring of private reserves is occurring annually from 2016 onwards. 	<p>Actions:</p> <ul style="list-style-type: none"> • Promote and provide support for ecological monitoring by landholders of other private lands. • Engage with and enlist landholders to undertake monitoring their own land. • Identify ways to receive, store, analyze and interpret ecological data on land health and condition.
<p>Goal: Grow our Citizen Science Program</p> <ul style="list-style-type: none"> • Mobilize volunteers, technology and innovative communication techniques to engage the community in reserve or non-reserve based activities and measure their success (S2.3). <p>Measure:</p> <ul style="list-style-type: none"> • Citizen science underpins 2 major TLC science programs by 2018. • Volunteer participation in TLCs science conservation is increasing annually. 	<p>Actions:</p> <ul style="list-style-type: none"> • Progress the development of acoustic monitoring and its uptake across the community to address deficiency in landscape scale information, especially for birds and freshwater systems. • Actively progress a web platform to expand citizen science involvement in photo monitoring. • Brand our citizen science program, promote it widely and ensure participants understand its purpose and gain a meaningful experience.
<p>Goal: Strengthen our Professional Partnerships</p> <ul style="list-style-type: none"> • From 2016, TLC participation in local, national and international forums will facilitate the exchange of knowledge for collaborative conservation outcomes (G3.2). <p>Measures:</p> <ul style="list-style-type: none"> • One national and one international science-based partnership are secured by 2018. • Three ecologically applied research projects are being undertaken on TLC reserves annually. 	<p>Actions:</p> <ul style="list-style-type: none"> • Encourage and support collaborative research projects, especially on TLC land driven by management needs e.g. Bruny Island cat free program (S3.1). • Explore the potential for field studies facilities on TLC reserves (S3.3). • Strengthen ties with Conservation International, TNC and other NGO's and explore the potential for staff exchange. • Continue to collaborate with partner and academic organizations to develop and expand conservation research, planning and education (S3.2). • Promote TLC's 'spade-ready' projects for internships and research associates. • Formalize the partnership with UTAS for the Masters Intern 80 hour placements. • Review the TLC's Science and Planning Advisory Council's terms of reference.

3. Leadership

The TLC's vision for Tasmania to become a global leader in nature conservation is predicated on this island having a world-class reserve system complemented by best practice conservation management across the entire landscape. Under the auspices of the TLC's Conservation Science and Planning Advisory Council (the Science Council), the exacting task of identifying what constitutes a world-class reserve system for Tasmania, has now been completed and a draft map produced showing the shortfalls still in need of protection. This map will become a key component in TLC's decision support matrix i.e. the tool used by the organisation to evaluate the conservation value of a piece of land in conjunction with the organisation's capacity to purchase and manage it. The draft map needs to be validated and embedded in the decision support matrix to ensure we have the most reliable information on hand to help meet these targets.

TLC's vision for a world-class reserve system envisages all levels of government, business and the community playing a role. While TLC strives to protect these priority areas through purchase and partnerships, this can only achieve part of the plan and we need other strategies to fill the gaps. To-date our focus on terrestrial land has meant that sensitive ecosystems such as freshwater, estuarine and marine systems have been beyond our scope, yet these ecosystems also need attention. A workshop determining how we proceed in the future may uncover a range of new and innovative strategies to the mix.

Conservation around the world is rapidly changing with a growing urgency to find new approaches to emerging or perennial problems. If or how we can expand our influence will depend on how successful we are in being competitive and remaining financially robust into the future. Our previous work on carbon and ecosystem services has demonstrated the conservation benefit of developing major new initiatives not just for the organisation but Tasmania more widely, and it is this thinking that will keep us at the forefront of new conservation challenges. The continual growth in technologies especially acoustic devices has the potential for citizen science to contribute essential data at a landscape scale, particularly for bird conservation and river listening. Driving these programs will help us to better understand the health of our environment and to be world leaders in nature conservation.

Inevitably, these ideas and programs may develop over time as opportunities arise, but some current concepts include:

- Securing water rights and environmental flows for nature conservation.
- Sustainable forestry, soil carbon and other ecosystem service monetisation.
- Impact investing, biodiversity offsets and mitigation banking.
- New eco-tourism markets and commercial low impact ventures.
- Harnessing the community state-wide in monitoring especially bio-acoustic monitoring.

LEADERSHIP	
GOALS AND MEASURES	ACTIONS
<p>Goal: Achieve a World-Class Reserve System</p> <ul style="list-style-type: none"> • By 2020 at least 25,000 ha of priority private lands are being managed for conservation (G1.1). • By 2017, a plan to secure the remaining areas required for a world-class reserve system is developed (G1.2). • Information systems and decision support tools are helping to meet world-class reserve system targets (G3.1.1). <p>Measures:</p> <ul style="list-style-type: none"> • By 2017 TLC's decision support matrix underpins all new property acquisitions. • By 2017 the WCRS identifies conservation priorities and allows tracking of progress towards achieving them. 	<p>Actions:</p> <ul style="list-style-type: none"> • Validate the draft world-class reserve system analysis and embed these tools into TLC in-house systems. • Update the decision support matrix with world-class reserve priorities and indices for ecosystem function, natural diversity and resilience. Critique this tool's effectiveness. • Help identify and assess properties for conservation management as they emerge in the marketplace. • Develop a plan to meet the remainder of the world-class reserves system targets and help identify potential implementation options. • Develop at least 2 innovative mechanisms to implement a plan for a world-class system of reserves.
<p>Goal: Innovate for Nature</p> <ul style="list-style-type: none"> • At least two mechanisms new to the TLC will be engaged to achieve nature conservation by 2020 (G4.2). <p>Measures:</p> <ul style="list-style-type: none"> • By 2018 TLC is driving two signature programs addressing issues of broader conservation concern. • By 2020 at least two mechanisms new to TLC are helping to implement a plan for a world-class system of reserves. 	<p>Actions:</p> <ul style="list-style-type: none"> • Explore the potential of strategic projects such as trading in water rights, offsets, impact investing, mitigation banking, sustainable forestry, monetization of ecosystem services including soil carbon, and other potential mechanisms to optimize conservation outcomes at a large scale (S4.5). • Partner with state, national and international institutions to create ambitious solutions for nature conservation challenges (S4.1). • Investigate the use of TLC reserves for eco-tourism and similar activities that enhances visitation. • Progress the development of acoustic monitoring and its uptake across the community to address deficiency in landscape scale information, especially for birds and freshwater systems. • Build staff capacity through professional exchange and other knowledge forums etc.

4. Resources Needed to Deliver this Strategy

This Strategy builds on current programs with actions that are realistic and achievable, and also contains new initiatives providing opportunities for growth and challenge. It can be delivered by a small team provided the current 2016 level of staffing and resourcing is maintained.

In 2016, the Science and Planning team comprised 2 part-time TLC staff and 2 contract positions, which equates to 2.8FTE and 544 work days per year for science deliverables.

- TLC Manager, Science and Planning (0.8 FTE, 176 days)
- TLC Conservation Ecologist (0.8 FTE, 176 days)
- 2 contract positions at 0.6 FTE each (132 days x 2 = 264 days)

If this strategy is to meet its targets then a minimum of 544 work days per year are needed for its implementation. The team must retain a mix of high level knowledge of Tasmania's natural systems, sophisticated GIS skills, high level communication and networking skills, a national and international focus, and a strong desire to be learning, leading and teaching others. Field-based knowledge is essential so tasks can be shared during the busy field season. It is recommended that replacing contract positions with TLC employed staff be reviewed at the end of 2016 and the feasibility of employing graduate interns on a job-share basis be considered in the future.

5. Evaluation

TLC's Strategic Plan review process in 2015 provided input and direction for the development of this Science and Planning strategy. The goals, actions and targets contained in this document will be delivered by TLC staff after its endorsement.

This plan will be evaluated and revised on a regular basis, with a full review at the end of TLC's Strategic Plan 2016 - 2020.

6. Approval

This strategy was reviewed and approved by the Science and Planning Council. It was then presented to and approved by the TLC Board at its meeting on:

21 June 2016