

River sustainability – essential for the livelihoods of landholders

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Introduction

The people involved in the management of the Lake Eyre Basin are among the most dedicated and united in their commitment to the long-term sustainability of these magnificent rivers (see Chapter 7). They come from many walks of life with a common purpose: to protect and sustainably manage these river systems. Sustainable management began with the first people, establishing 17 Aboriginal language groups across the Lake Eyre Basin. Landowners, like me, followed later and now live along the rivers of the Lake Eyre Basin. There are others who live outside the Lake Eyre Basin, sometimes regarded as not having such a strong stake, who also care deeply about the long-term sustainability of these magnificent rivers. These include the non-government organisations, government organisations and scientists (see Chapters 7 and 17). From a local's point of view, we owe a great debt to all these contributors to the debate about the future of this great river system. All these people have brought their experience and deep love of country to their commitment to protect the rivers and not make the same mistakes as were made for many of the world's rivers and wetlands (Kingsford *et al.* 2016).

My family lives on the Thomson River (Fig. 10.1), south-west of Longreach. The river flows southwards, joining with the Barcoo River to become Cooper Creek, the world's largest creek. The Lake Eyre Basin also has the Diamantina and Georgina Rivers and a host of other small rivers across western Queensland, which can eventually flow through to Kati Thanda-Lake Eyre in South Australia. My family has lived in this landscape since my grandmother drew the property in a ballot in 1915, as part of the scheme to open up the larger 'super properties' to more families, encouraging settlement in these rural areas. I am the third generation of my family to live on this land, following the original Aboriginal custodians. We rely on the floods from the rivers for our livelihood, with large areas of floodplain on the property. The floods bring nutrients and water, which stimulate pasture growth on which our cattle thrive. I love this country and its range of different habitats. My other great interests are the ecology of this land and its rivers, and the flora and fauna that make up this ecosystem. These interests have provided me with opportunities to interact and work with scientists from many national and international institutions.

Lake Eyre Basin – a special place

The Lake Eyre Basin is a wonderful system for both the environment and the people. It covers about one-seventh of Australia where a comparatively small population supports a range of sustainable industries (Kingsford *et al.* 2014). The Lake Eyre Basin has places of



Fig. 10.1. The Thomson River flows through our cattle property to join the Barcoo River and form Cooper Creek. Booms in flows and floods bring the double bonus of improved grazing pastures for our livestock and an incredible boom in biodiversity, which is my passion (photo, A. Emmott).

huge significance to local residents, other Australians and internationally. We have some of the most incredible wetlands in Australia. The river is central to our life; it provides for all people and biodiversity along its length, right down to its end at Kati Thanda-Lake Eyre. These rivers keep the towns, tourism and the rural industries going (see Chapters 11 and 13), as all are reliant on the dividends delivered by the floods. Our beef industry works on the basis of taking livestock out when it's dry and bringing them in, following the wet season. Our rivers are among the most variable in the world (Puckridge *et al.* 1998; McMahon *et al.* 2008). In our Thomson River, the flow regime depends on rainfall patterns in the north-east of the Basin, determining our incredible cycles of 'boom and bust' (see Chapter 1). The booms come with big wet monsoon seasons that can extend down into the headwaters of our major rivers, the Georgina River, Diamantina River and, where we live, Cooper Creek. Cyclones are particularly important in producing large rainfall events, which then drive the flows in the rivers, pushing large pulses of water down the system and causing extensive flooding that triggers a wildlife boom. Unusually, our rivers decrease their flow as they progress down the catchment. They start in high rainfall areas and increase until they reach the large floodplains of the Channel Country and then decrease their flow (Knighton and Nanson 1994) because the floodplains act like a natural sponge.

It takes huge and rare rainfall events to produce enough waters to flood the 80 km-wide floodplain, south of the town of Windorah, called the Channel Country. These floods make it one of the best 'naturally irrigated' pastures in the world. For people depending on the



Fig. 10.2. Floods and small flows are critical in maintaining the triple bottom line for pastoralists living on the rivers of the Lake Eyre Basin. They replenish waterholes for drinking cattle and stimulate tremendous growth in floodplain pastures for the beef industry (photo, A. Emmott).

river and the large floods, we look to the north, knowing that it is not just one flood but sequences of floods which are critical (Puckridge *et al.* 2000) for the river to flow all the way to Kati Thanda-Lake Eyre. The boom periods are essential not only for the people living on the river, providing water and grazing for livestock (Fig. 10.2) and the flood-dependent living animals and plants, but also for the terrestrial ecology. Rainfall and flooding underpin the ecology of the deserts. During boom periods, there is tremendous productivity, triggering incredible breeding by animals, including reptiles, frogs and small mammals (see Chapter 6). Inevitable dry periods follow, such as those experienced in 2013–15, following extensive floods in 2009–11. Even in such dry periods, there are often small river flows, which are critically important for our livelihood and the ecology of these systems (Hamilton *et al.* 2005; Bunn *et al.* 2006). These flows top up the waterholes, providing environmental, social and economic relief from the long dry periods.

The future of the Lake Eyre Basin

The Lake Eyre Basin is remarkably unscathed by human impacts; it is in great shape (Kingsford *et al.* 2014). I like to describe it as pristine even though we know there are human impacts wherever we go (see Chapter 22). You cannot say this of many other rivers of the world. We've got rivers here that work and do not cost anything to manage. They're doing what rivers are meant to do. Compare this river basin with its cousin to the south-east, the Murray–Darling Basin – a system with serious sustainability issues (see Chapters 14–16).

Many people living in the Lake Eyre Basin have family or friends from the Murray–Darling Basin and so there is a good appreciation of its significant environmental problems, straining from over use. Far too much water was extracted from the Murray–Darling Basin. The problems started small and increased (see Chapter 15). A few people wanted to extract ‘a little bit of water’, often complaining that it was going to waste when it went past them. This was the history of the Murray–Darling Basin and the overdevelopment of its rivers. We have to do much better for the sustainability of the rivers of the Lake Eyre Basin.

We live on the world’s driest inhabited continent, and water is scarce and critical. We need to be smart. Life out here in the arid zone of Australia is predicted to become even more difficult with climate change impacting Lake Eyre Basin rivers. The signs are clear as temperatures rise (Reisinger *et al.* 2014). Increasingly longer periods of high temperatures, above critical thresholds, are particularly concerning. Temperatures in March 2015 may be a portent of a grim future. We experienced one of the hotter autumn periods ever recorded, with temperatures exceeding 40°C for 20 consecutive days. Extreme heat waves during summer have killed birds, kangaroos and occasionally domestic pets in outback Australia.

The projections are for increasingly intense rainfalls, separated by long, dry periods (Greenville *et al.* 2012). This inevitably means either extremely high flows or long periods of low flows or no flow in the rivers. This has major implications for the last remaining waterholes in the Channel Country and in South Australia, which act as refuges (Hamilton *et al.* 2005). These habitats provide oases in a desert landscape for aquatic animals and also terrestrial animals. It is critical that we allow all floods to run unimpeded. Low flows can be particularly critical during the long dry periods (Bunn *et al.* 2006). For those of us who depend on the water of the rivers, it is going to be harder and drier, with potentially more intense floods but long, dry periods in between.

We have a collective responsibility for the sustainability of the Lake Eyre Basin. The management of the Basin has required a joint, cooperative approach between the states of South Australia, Queensland, the Northern Territory and the Australian Government. This is achieved through the Lake Eyre Basin Intergovernmental Agreement (see Chapter 7). It aims for cooperative management, focusing on maintaining naturally variable flow regimes and water quality which fundamentally underpin the health of these systems. It takes a precautionary approach to management. Over the past 20 years, we have had thousands of people involved in hundreds of meetings to give effect to this agreement. Community, industry and science have worked together to chart a sustainable path to the future (see Chapter 7).

Once again, there are multiple threats to this agreed future along the Lake Eyre Basin rivers, particularly from mining and irrigation (see Chapters 19 and 20). Many people believe that the Lake Eyre Basin is not suitable for these developments. Most people involved in advising governments about the Lake Eyre Basin over the last 20 years are committed to ensuring the rivers are not regulated or large amounts of water diverted. As with the Murray–Darling Basin rivers, talk is about a little bit of development (see Chapter 22), but history can have an unhappy habit of repeating itself.

As someone who loves this river and depends on it, I don't accept that diversion of water from this river is sustainable to satisfy the greed of a few. It is unacceptable, given the importance of flows and our collective majority commitment to keeping this river flowing naturally. So we have a choice for the future of our rivers. We can treat them with the respect they deserve and have sustainable industries. Or we can take the greedy path and start destroying our rivers, affecting the sustainability of this unique river system and our future.

Conclusion

The Lake Eyre Basin is an amazing place, but it is also fragile because it is so dry. We depend on the river and its natural flow patterns for our long-term sustainability. It is our life support system. Ultimately, the 'triple bottom line' depends on maintaining the ecology and building a strong society and economy, supported by sustainable ecosystems. Without the natural flows, we will not be able to support our sustainable organic beef industry, wool and ecotourism throughout the Lake Eyre Basin. We cannot afford to develop the rivers of the Lake Eyre Basin – they are our triple bottom line.

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