

Discussion Paper

Off-road Vehicles on Beaches - the impacts, implications and options for coastal managers in Australia

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Background

During Coast to Coast 2010, an informal group was formed to network approaches to look into the wider issue of off-road vehicles (ORV) on coastal habitats. Following the conference, the Adelaide and Mount Lofty Ranges Natural Resources Management (NRM) Board's Coast, Estuary and Marine Advisory Committee endorsed support for a workshop or forum to address collaborative national approaches to coastal vehicle management issues with the aim to allow discussion and networking to progress a coordinated national approach to the issue.

This discussion paper and the workshop to be held at Coast to Coast 2012 – Living on the Edge have been generously supported by the Adelaide and Mount Lofty Ranges NRM Board.

Summary

The impacts of ORVs on beaches comprising both rocky and sandy foreshores, adjacent tidal wetlands and inter-tidal areas (including seagrass beds) have been documented internationally for a number of decades.

Different types of vehicle use in coastal areas are likely to have different impacts on individual coastal habitats. For example, the impacts from slow speed access along the foreshore for fishing purposes will differ from vehicles travelling at high speeds higher on the beach or in dune areas. Differences in impacts will also vary according to the weight of the vehicle, power, potential range and noise generated by the ORV, and from the time of operation (particularly in relation to the tide). In addition, the characteristics of an individual coastal environment will determine its capacity to withstand the impacts of vehicles. It is noted that all ORV's will have some impact.

While the ORV-based recreation and tourism industry can provide substantial economic benefits to regional communities, it must be recognised there are associated environmental and social impacts that need to be managed. Without management, ORV usage will continue to disperse into local bushland areas causing significant long-term damage to the environment and the diversion of conservation resources into rehabilitation work.

The WA State Trail Bike Strategy, Back on Track, (2008) has recognised the need to transition from unplanned, unmanaged and unsustainable ORV use to planned, managed and sustainable use.

As well as environmental impacts, inappropriate or incompatible ORV use can cause conflict between users. These conflicts may have a negative impact on business opportunities. There are additional social considerations requiring attention. With increasing levels of usage, enforcement

costs will be a growing burden on land managers. The issues of insurance, liability and risk management must be addressed, without risk management, preventable injuries and deaths will continue to occur. Insurance claims and litigation directed towards land managers may be expected to increase, and could have a flow-on effect to the community through the passing on of higher insurance premiums.

Whilst this discussion paper will not provide a review of all impacts of off-road vehicles on the coast from across the globe, it will attempt to provide a sufficient evidence base to initiate discussion on this significant management and conservation issue and provide some options for addressing these issues in our coastal areas around Australia. Australian examples have been used wherever possible.

What is an off-road vehicle?

Typically, ORVs include four-wheel drives (4WD) that are also usable on normal roads (Road Registered Vehicle or RRV), quad and trail bikes – although in some areas, they may also include specialised “all-terrain vehicles” (ATV) that have three, four or even six wheels, hovercraft and other amphibious watercraft. For the purposes of this discussion paper we will be primarily focusing on four-wheel drives (4WD), quad and trail bikes.

What constitutes a beach?

The Australian coastline stretches over a distance of more than 36,000 kilometers. Australia defines itself as a *beach culture* with 85% of Australians now living within 50Km of the coast.

Australia boasts an array of coastal landforms including beaches, dunes, rocky shores, coastal wetlands and saltmarshes all of which have been included for the purposes of this discussion paper.

Beaches and dunes are complex physical and ecological systems. The morphodynamics of beach and dune systems share common underlying principles based on the combination of factors such as sediment type, wave climate, local weather patterns, vegetation types and density of cover. Each beach and dune system is unique because of the local combinations of these factors. Hesp (2001 & 2002) provides detailed explanations of the dynamics, geomorphology and evolution of incipient foredunes, established foredunes, and blowouts. His international review emphasises the influence of vegetation cover on dune morphology and growth rates and stability.

A saltmarsh is a community of plants and animals that grow along the upper-intertidal zone (above the mean spring-tide height) of coastal waterways. Saltmarshes are habitats for communities of salt-tolerant vegetation (including: grasses, herbs, reeds, sedges and shrubs), a wide range of invertebrates, and low-tide and high-tide visitors such as fish and water birds.

Why are off-road vehicles a problem for our beaches?



Figure 1: What messages are we sending internationally? Pictured – Ocean Beach, Fraser Island World Heritage Area (Photo: Thomas Schlacher).

Summary of impacts

There are many ways that off-road vehicles impact on Australian beaches and dunes and adjacent coastal wetlands. These comprise:

1. Direct impacts on flora through loss of vegetation cover and subsequent erosion. This also includes direct impacts on saltmarsh – wheel ruts from ORVs persist for many years, even after vehicles have been excluded (DECC, 2008).
2. Direct impacts on fauna such as migratory and resident shorebirds and nesting marine turtles listed through the *Environmental Protection and Biodiversity Conservation Act 1999* -impacts include disturbances (causing birds to leave nests, eggs and chicks or feeding and roosting areas), collisions, nest destruction and the crushing of chicks and hatchlings.
3. Direct impacts on benthic micro- and meiofauna through compaction of sand reducing habitat potential and reducing the numbers of invertebrates available for feeding and leading to changes in community composition and structure.
4. Direct social impacts on beach users, especially where some activities are not compatible with others. For example ORVs driving through areas where families (especially with young children) are sunbathing, swimming and playing; dunes where rehabilitation work is being undertaken; or where commercial ORV activities affect the aesthetics or private enjoyment of a remote beach.
5. Direct impacts on cultural heritage sites including aboriginal shell middens along our foreshores, tidal wetlands and intertidal areas.
6. Indirect impacts to coastal communities through erosion and decreased resilience to the future and ongoing impacts of sea level rise, storm surges and extreme events (cyclones etc.).
7. Indirect impacts on native flora and fauna through the introduction of weeds and pests competing for habitat and/or out-competing native species. Of particular concern are the implications of vehicle hygiene and the transmission of diseases such as *Phytophthora*.

The international literature regarding ORV focuses on the following topics:

- direct impacts on flora and fauna,
- the methodology to identify the carrying capacity of a particular site or
- the challenges of how to manage vehicle use on beaches.



Figure 2: Impacts on shell middens and cultural heritage values, Worimi Conservation Lands (Office of Environment & Heritage, NSW).

All of the literature canvassed for this review suggests that vehicles have an impact on natural beach systems. There is no evidence to suggest that vehicles on beaches are benign. Articles in popular journals and postings on websites from recreational user groups such as four wheel drive clubs and tourism organisations focus on minimising the adverse impacts rather than disputing the effects of vehicle use on beaches (Coastline Consultants, 2007).

For the purposes of this discussion paper, we will examine the evidence base for impacts on flora, fauna and coastal erosion as well as the implications for disease management and safety.

Direct Impacts on flora

Unrestricted access into saltmarsh by walkers, cyclists, off-road vehicles and grazing animals also adversely affects saltmarsh communities; for example, wheel ruts from off-road vehicles and trail bikes persist for many years in saltmarsh, even after vehicles have been excluded (DECC 2008). Faced with these threats, the NSW Department of Environment and Climate Change (DECC) recently classified Coastal Saltmarsh as an Endangered Ecological Community (EEC).



Figure 3: Vehicle wheel ruts on coastal saltmarsh, Middle Beach, South Australia (Photo: Bill Doyle, AMLRNRMB).

It should be recognised that some habitats and environments (such coastal dunes or tidal saltmarsh) may have a nil 'carrying capacity' for vehicles and that vehicle use of these areas may need to be prohibited (Stephenson, G, 1999).

When driven in saltmarsh, four-wheel drives and motorbikes can destroy the samphire flora and change the structure of the habitat. The increased disturbance caused by four-wheel drives and dirt-bikes in roosting and feeding areas can prove tantamount to habit loss if birds are disturbed to the point where the energy costs of surveillance behaviour and disturbance flights outweigh the energy gained from the habitat (West et al. 2002; Goss-Custard et al. 2006; Rogers et al. 2006; Peters and

Otis 2007). If disturbance is sustained, shorebirds may abandon even the most productive of habitats within and across seasons (West et al. 2001, Goss-Custard et al. 2006).

Direct Impacts on Fauna



Figure 4: Deep vehicle ruts can trap turtle hatchlings and shorebird chicks (Photo: Thomas Schlacher).

Whilst there are many species impacted on by ORV's including insects and detritus feeders, more disturbing perhaps are the impacts on EPBC-listed species such as shorebirds and marine turtles.

ORV tracks are deep enough on some beaches to act as traps that prevent turtle hatchlings reaching the sea, or are used as shelter sites by shorebird nestlings that can result in their death when ORVs retrace their routes.

Disturbance from vehicles may cause shorebirds to fly off nests, eggs and chicks or change activities. This may mean that they have to fly to areas that are inadequate for feeding or resting. Even in seemingly remote areas, there can be fisherman and vehicles on beaches (Harding & Milton, 2003). For migratory shorebirds, this is a real issue. Every disturbance impacts on feeding time or means birds expend energy in flight. These birds need to make the long distance

flight back to overseas breeding grounds where they breed and interruptions to feeding and expending energy can compromise their return flight.

Recent research by Meagher *et al.*, (2012) demonstrated that habitat selection by birds on beaches was modified by human use. Shorebirds on beaches are known to be sensitive to indirect and direct disturbances from popular recreational activities that include hiking, driving of ORVs, walking domestic dogs, harvesting bait and angling (Burger & Gochfeld, 1991; Burger, 1994; Lafferty, 2001; Defeo et al., 2009).

Compaction of sand by ORVs and walkers can also reduce the numbers of invertebrates available for feeding birds (Kingsford, 1990). Greenslade and Greenslade (1979) found that compaction reduced the number of invertebrates in the Coorong.

Adverse interactions with breeding birds are also a problem (Watson et al., 1996), with ground-nesting birds being especially vulnerable.

Vehicles driving along beaches can have a major impact on breeding success of nesting shorebirds, particularly in South Australia where recreational driving is permitted on most of the coastline (Buick and Paton 1989, Garnett 1992). The growing number of ORVs has resulted in increased recreational driving on isolated stretches of coastline where beach-nesting birds previously lived undisturbed

(Schulz and Bamford 1987). Vehicles have destroyed nests of fairy terns and little terns (NSW NPWS 2003, EJ Woehler *pers.comm.* 2012). Vehicles on dunes and beaches are thought to have caused colonies of fairy tern to decrease in eastern Tasmania (Birds Australia 2009; Threatened Species Section 2010) and the Eyre Peninsula (DEH 2008).

Buick and Paton (1989) reported that 81% of artificial Hooded Plover *Thinornis rubricollis* nests were run over by ORVs in South Australia. Chicks were reported to shelter in wheel ruts and the number of wheel ruts on the Youngusband Peninsula indicated that up to 30% of chicks could be crushed (Buick and Paton 1989). As a result of this study, the Youngusband Peninsula has an annual beach closure to all vehicles (with the exception of a low number of commercial fishery vehicles) from 24 October to 24 December, primarily to protect nesting Hooded Plovers (SA Government 1993). All shorebirds and fairy terns have benefited from this management action (DENR 2011). [Cited by Baker-Gabb & Manning, 2011.]

Following two years of community debate over the issue of vehicle access on Aldinga Beach, the City of Onkaparinga council (South Australia) resolved to establish a seasonal closure section between the Aldinga and Silver Sands ramps during the winter months (May – October), and a permanent closure of a 140m section of Silver Sands Beach between Parrot and Cowrie Roads (via temporary structures between December 2004 and January 2005, that were made permanent with the instillation of wooden bollards in February 2005) to address both physical impacts and impacts to shorebirds. (Flinders Research Centre, 2008)

Macro-benthos

In 1975, the intense use of ORVs was demonstrated to reduce ghost crab populations in Virginia by collapsing their burrows (Fialka, 1975). More recently, Boon *et al.* (1999) have shown that ghost crabs in South Africa are directly destroyed by night-driven ORVs, as they appear to be disorientated by/attracted to headlights.

Schlacher and Thompson (2007) quantified the spatial and temporal patterns of ORV traffic on five Australian beaches and measured the degree to which the distribution of intertidal macro-invertebrates overlapped with the traffic zones. They found that traffic volumes on beaches can be considerable (up to 500 vehicles per day) and that the position of beach traffic across the beach face is principally governed by tides and driver behaviour. Despite driver education campaigns to the contrary, 16–67% of vehicle still traversed the soft, upper shore near the fore dunes with 65% of burrowing intertidal invertebrate species directly exposed to traffic (excluding the wet/swash zone).

Macrobenthic assemblages on ORV-impacted beaches also have significantly fewer species at substantially reduced densities, resulting in marked shifts in community composition and structure. These shifts were particularly strong on the middle and upper shore where vehicle traffic was concentrated. Strong effects of ORVs were detectable in all seasons, but increased towards the summer months as a result of heavier traffic volumes (Schlacher *et al.*, 2008).

Purnell *et al.* (2011) note that in the South Australian coastal towns of Parham, Webb Beach and Thompsons Beach, north of Adelaide, an influx of off-road vehicles accessing areas of saltmarsh,

intertidal zone and claypans from Port Gawler to Parham threaten to reduce the habitat value of feeding areas. Off-road vehicles can compact sediment and the benthic macrofauna contained within (Schlacher *et al.* 2008), drastically reducing the availability of shorebird prey.

Erosion

There is much evidence that beach use by ORVs is physically damaging to the structure and function of the beach. Physical effects include changes in soil bulk and erosion. Dune and sand vegetation is vulnerable to crushing and supports specialised insect communities. Vegetation loss contributes to dune erosion (Van Der Merwe, 1988).

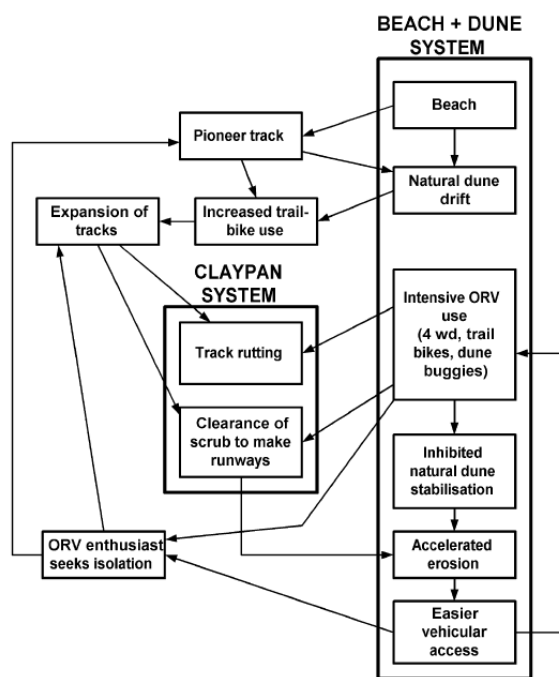


Figure 5: Simplified Model of feedback relationships between ORV use, track network development and dune/claypan system in South Africa (modified from Gilbertson, 1981).

Due to weight and type of motion, the damage caused by vehicles is more extensive than that caused by human trampling (Westhoff 1967). Schofield (1967) and Weaver and Dale (1978) further noted that repetitive use increased erosion, the former stating that 4,000 uses caused the exposure of sand and soil in grey dunes, and the latter stating that up to 1,000 repeated passages by motorbike increased track depth.

Hylgaard and Liddle (1981) also noted that as more frequently used tracks wear down faster than those less frequently used; the intervals between uses are also of importance in that repeated use over a short period of time can be more damaging than the same amount of repetitions taking place over a longer period of time. [Cited by Kindermann & Gormally, 2010].

A detailed study of impacts on a coastal barrier system with varied soil types was conducted near Adelaide by Gilbertson (1981). This involved study of several types of ORVs and ATVs.

Overall, the researcher found that they caused increased soil erosion and destabilised dunes. Scrub and sand-binding grass damage, plus collapsing of dune ridges were responsible for enhanced dune mobility, while compacting of clay pans behind dunes led to reduced water penetration, surface waterlogging and enhanced water-driven erosion. This study also led to a simple positive feedback model of ORV use, access track development and dune drift (Fig 1.). Overall, Gilbertson found that recreational ORV use, then in its infancy, had already done more damage to the barrier system in a few years than previous centuries-long pastoralism.

On World Heritage Area-listed Fraser Island, of the 124 km of ocean exposed beaches, 122 km (98%) are open to vehicles driven on the beaches, and camping zones cover 28.7 km or 23% of the dunes. In a study undertaken by Thompson and Schlacher (2008), they found a total of 235 vehicle tracks

cut across the foredunes at an average density of eight tracks per km of beach effectively destroying one-fifth (20.2%) of the dune front in camping zones by deeply incising the dune-beach interface. The researchers also found evidence of accelerated erosion and shoreline retreat centred on vehicle tracks, resulting in a “scalloping” of the shoreline with no dune vegetation in the tracks and a significantly reduced abundance of ghost crabs (*Ocypode* spp.) compared with the abutting dunes.

In 2002, the seriousness of ORV impacts led South Africa to ban coastal use of ORVs from large stretches of the coastline of KwaZulu-Natal (Celliers *et al.*, 2004). A complex geographical information system (GIS)-based decision making tool identifies recreational user areas (RUAs) where ORVs can be used (but only under permit), but excludes vehicles from sensitive, valuable and vulnerable areas. Typically, vehicles are totally limited to hard-packed sand on the lower and middle shores, even within RUAs. There was substantial opposition to these new regulations from ORV users.

Disease management and quarantine issues and off road vehicles:

South Coast Natural Resource Management, Western Australia’s Project Dieback notes that Phytophthora Dieback caused by the introduced plant pathogen, *Phytophthora cinnamomi* has the potential to significantly alter the structure of various vegetation communities. There is no effective cure for Phytophthora Dieback, but its spread can be controlled. Phytophthora Dieback can affect a range of coastal vegetation. The disease is spread by mud on footwear or vehicles, shifting infested soil or gravel, grading roads or moving infected plant material. Key to managing this disease risk is restricting access, cleaning vehicles or sterilising equipment. In some states Dieback Protection Areas have been introduced to ensure areas of dieback-free vegetation are protected. ORV management strategies will also need to incorporate risk and control measures for this and other possible future pathogens (South Coast NRM Inc. Project Dieback).

Safety

The Proceedings of the Vehicles in the Coastal Zone Regional Forum: South Coast, Western Australia noted the safety aspects of ORVs and the increased strain that increasing activity may have on regional health and emergency services. Safety and risk management strategies are important concerns for land managers. Vehicle accidents can result from vehicle vs. ground/tree, vehicle vs. vehicle and vehicle vs. bystander. Dangerous conflicts exist where active and passive recreational uses occur in the same area. Interest was shown by forum participants in the injury statistics from the Shire of Gingin, Injury surveillance project in rural WA – an Off Road Vehicle focus: Annual reporting of injuries sustained in Lancelin, 1994-2007, by Nicole Dawson from the WA Country Health Service.). The increased number of injuries presented reflects the increased vehicle activity and has placed an increasing demand on local health and volunteer ambulance services. (South Coast Management Group, 2009). Safety issues were also been highlighted in work in the North Queensland Dry Tropics (see Case Study 5).

Aboriginal Cultural Heritage

The location and variable exposure of the large amount of Aboriginal cultural material along our coasts means there is a high risk of impacts from vehicles. Sites include shell middens, artefacts and burial sites.



There is ongoing damage from ORVs driving on and through sites with vehicular activity along back of swale and toe of high dunes is also increasing erosion in this zone. This results in increased exposure of and impacts on Aboriginal sites from vehicles. Burial sites are highly significant and it is difficult to predict where they may occur in the landscape.

Figure 6: Impacts on Aboriginal shell middens by ORV, Worimi Conservation Lands, NSW

Review of the Governance

There is currently no national coastal policy (or legislation) that extends to the management of ORV on beaches in Australia. In 2009, the House Standing Committee on Climate Change, Water, Environment and the Arts presented its report from an inquiry into climate change and environmental impacts on coastal communities. An excerpt (from Recommendation 32) is included below.

“The Committee recommends that the Australian Government: through the Natural Resource Management Ministerial Council and in consultation with Birds Australia and other stakeholders to implement a National Shorebirds Protection Strategy. The strategy should focus on tightening restrictions on beach driving and access to bird breeding habitat, preserving habitat, identifying suitable buffer zones for migration of coastal bird habitat, managing pest animals and increased public education.”

Whilst the Australian Government agreed in principle (November 2010) with this recommendation the issue of beach driving has not, to date, been specifically addressed.

This leaves the issue of ORV management on our beaches in the hands of the States and Northern Territory (state legislation) or Regional Councils (local regulations / by laws) or with ORV users themselves e.g. through voluntary codes of practice.

Table 1: Summary of State and Territory Legislation (SCMG, 2009)

State / Territory	Legislation/strategy or Policy
NSW	Vehicles (ORV & RRV) are managed under <i>the Land Transport (Vehicle Registration) Act 1997</i> and <i>Recreational Vehicles Act 1983</i> . Unregistered vehicles are prohibited from all beaches. Local Governments that allow RRV to drive on beaches do so using local by-laws, which usually include a permit system. Local Government and community Codes of Conduct have also been developed. The <i>Recreational Vehicles Act 1983</i> was originally established to provide for the creation of recreation vehicle areas (RVAs). The only remaining RVA on publicly managed land is at the Worimi Conservation Lands. RRV and ORV with conditional registration under the <i>Road Traffic Act 2005</i> specific to the RVA are permitted.
QLD	ORV & RRV access are generally managed through the <i>Transport Operations (Road Use Management) Act, 1995</i> . Recent changes (see below) to the State Coastal Management Plan (QLD coastal policy) have suggested a strengthening of policy towards addressing the issue of ORV on beaches. However, most national parks remain open to RRV (not ORV) under a permit system e.g. Fraser Island, which is also managed under the <i>Recreational Management Act, 2006</i> . Local Government by-laws can exclude RRV, ORV or both e.g. Gold Coast; or designate RRV areas, enforced with permit system e.g. Stradbroke Island.
Vic	Beach driving is classified as off road. Vehicles (ORV & RRV) have been prohibited on beaches for 40 years under <i>Land Conservation (Vehicle Control) Act 1972</i> . Under the <i>Victorian Coastal Management Act 1995</i> and Victorian Coastal Strategy, Regional Coastal Boards develop Coastal Action and Management Plans for their areas. In each of these plans and excluding only private access, ORV access on beaches is not allowed. Victorian ORV users are known to travel interstate to Robe, eastern South Australia to drive on beaches.
SA	Vehicle (ORV & RRV) access can be restricted and/or permitted by local by-laws. Vehicles on beaches can be managed under the <i>Marine and Harbours Navigation Act 1993</i> by the Department of Planning, Transport and Infrastructure. However beaches are roads, on which road rules apply. Local Government and community Codes of Conduct initiated Codes of Conduct for some permitted areas.
TAS	The <i>Vehicle and Traffic Act 1999</i> , requires that all vehicles must be registered. Restrictions exist in State National Parks and some formal Reserves. Local Governments can designate areas for ORV & RRV under by-laws, but many lack the capacity to restrict vehicles from sandy beaches. There are a number of designated areas for ORV with Codes of Conduct in place for ORV & RRV.
WA	The Control of Vehicles (Off-road Areas) Act 1978 applies to State lands and areas designated by Local Government by-laws (only ORV). RRV are managed under Road Traffic Act and local by-laws .
NT	Beach access open to Road Registered Vehicles, except by permit in Aboriginal lands and national parks.

Additional Information and Case Studies

New South Wales



Figure 7: Aerial photo of coastal fore dune system impacted by off-road vehicle activity and bitou infestation (Photo: Lake Macquarie City Council).

Case Study 1: Lake Macquarie City Council, NSW

“Our experience with off-road vehicles along this stretch of the coasts also extends to illegal dumping activity. The impacts and outfall from unrestricted access of off-road vehicles and dumping can be seen clearly in the aerial photo (above).

The issue is huge. It needs a clever strategy and substantial resources. Aside from the impacts from off-road vehicles on the resilience of coastal ecosystems it's just becoming dangerous to be on the beach in summer. I think the story starts with"once upon a time (only around 20yrs ago), before the proliferation of off-road vehicles, people enjoyed outings on the coast amongst the natural flora and fauna without the danger of being run over by a motor vehicle."

Information provided by Kym Bilham, Coastal Projects Officer with Lake Macquarie City Council, (pers. comm., 2012).

Queensland

Following considerable feedback during the review of the State Coastal Management Plan (2002) which commenced during 2008, a significant 24% of respondents indicated their support for limiting vehicle use on beaches. In March 2012, the Queensland Government finally endorsed the principle that:

Driving on beaches is not supported unless required for access and is actively managed to prevent significant impacts on ecological values and ensure a safe environment for other beach users.

The preferred policy position is to discourage driving on beaches, but recognising it is sometimes necessary for access or has resulted from historical use. New policies were adopted to support the principle which included:

1. Driving on beaches is only supported on beaches where:
 - a) no practical alternative access exists
 - b) the nature of the beach makes driving practical and safe
 - c) management actions are employed to ensure there are no significant safety risks to other users of the beach
 - d) no significant adverse impacts on Indigenous Traditional Owner cultural resources will occur
 - e) management actions are employed to ensure there are no significant adverse impacts on or to coastal ecosystems and species
 - f) the responsible government body has prepared and implemented a beach driving management plan that addresses the requirements of this plan.
2. Vehicle use of beaches is not to cause a significant adverse impact on the ecology of the foreshore—including foreshore plant and animal species, including nesting and roosting areas for sea turtles and migratory or other littoral bird species—and management plans must include provisions for the closures of beaches to vehicles during periods critical to the life cycle of species, such as:
 - a) within two hours of high tide
 - b) at night (to the extent this is practicable)
 - c) seasonally, to protect nesting and roosting areas for sea turtles and migratory and other littoral bird species.
3. Vehicle use on and adjacent to listed beaches is avoided, with the exception of access across the beach at approved boat ramps and access by vehicles for emergency or official purposes such as lifesaving activities, litter collection or wildlife management.
4. To the extent practicable, land managers are to manage vehicles to minimise impacts on coastal resources on and adjacent to listed beaches.

Whilst this was a notable change for the management of ORV on beaches, it should also be noted that following a change of Queensland Government in March 2012 has seen little progress with this policy position. In May 2012, Minister Steven Dickson announced the return of ORV access at two previously closed Moreton Island beaches as part of a 3-month trial. The results of this trial are currently pending.

South Australia

In March 2009, the South Australian LGA Executive Committee passed a motion requesting the LGA Secretariat organise a strategic workshop of key stakeholders on off road vehicle use. As a result of this motion, the LGA hosted a State wide forum in July 2009. The key theme for this forum was to examine the differing roles and involvement of respective organisations in assisting Councils in the management of vehicles on land under the care and control of Local Government.

A Local Government Land Access working group was established after the forum to address ORV access. The group consisted of Council representatives, South Australia Police, Department of Environment and Natural Resources, Natural Resources Management Boards, user groups and the Local Government Mutual Liability Scheme.

A discussion paper was drafted in early 2012 to consider land access management and the legislative framework governing vehicles on public land. While the paper identified issues arising from off-road access, it also identified issues relating to overlapping jurisdictions making it difficult to establish any single solution that Local Government could adopt.

The paper noted that access of 'off road vehicle use' might be managed in 3 key ways:

1. Prohibition of all vehicle access;
2. Uncontrolled vehicle access; and
3. Controlled vehicle access.

Suggested enforcement options include:

- Establishment of Codes of Practice through community and representative user organisations;
- Enactment of Council By-Laws to enforce breaches of the Code of Practice (including appointment of authorised officers which might also include persons from representative jurisdictions); and
- Enactment of State Government legislation to prohibit and/or control identified activities on Council land.

In their recent communique (August 2012) the LGA of South Australia stated that while Councils supported the views within the discussion paper, it is apparent there is no 'one size fits all' solution. There are various issues associated with vehicle licensing, speed management, public safety and natural resource management and addressing this problem will involve a number of Government agencies.

The LGA State Executive Committee at the meeting held on 19 July 2012, considered the paper and formed the view that:

1. Any resolution to this problem would need to be with Councils and State Government Agencies working together. Discussions between regional NRM boards, road vehicle representatives and Councils would also be beneficial particularly on ways to establish local use codes of conduct;
2. That Councils are still best to work through issues specific to each area of land in their care, control and management to resolve the issues they are experiencing; and
3. The LGA would provide a copy of the paper to Councils as a resource to assist in dealing with local issues.

Tasmania

Case Study 2: Arthur-Pieman Conservation Area, Tasmania

“The Arthur-Pieman Conservation Area is a 103 147 hectare reserve in north-west Tasmania. The reserve contains spectacular coastal landscapes, an extraordinary richness of Aboriginal cultural heritage, and highly significant and diverse ecosystems. It is managed to protect these values and enable a range of recreational activities.

The Arthur-Pieman area has been described by the Australian Heritage Commission as ‘one of the world’s greatest archaeological regions’ for its rich Aboriginal heritage. It forms the western coastal section of the Tarkine (the Tarkineer band residing at Sandy Cape; as the source of the name ‘Tarkine’) and contains thousands of Aboriginal sites. Many of these sites are being extensively damaged through ORV use. These sites are of invaluable significance for the Tasmanian Aboriginal community. The reserve also has historic cultural heritage significance associated with cattle grazing and mining.

Off-road vehicle use is a popular activity in the reserve and is also one of the most significant threats to the reserve’s cultural and natural values. Impacts on significant cultural, geoconservation, flora and fauna values are extensive throughout the area. There are concerns about the extent of the track network as well as the scale of land degradation at some sites. The coastal parts of the reserve are most heavily impacted by off-road vehicle use. It is a fragile area and requires active management and protection.

The reserve needs to be managed to protect its important values, while also continuing to provide for a range of recreational activities. The Tasmania Parks and Wildlife Service (PWS) continues to seek the cooperation of Arthur-Pieman users and the community to help ensure that the reserve is used sustainably and its values protected so that it can remain accessible for visitors in the future.

This final report provides a brief account of the natural, cultural, and social values of the Arthur-Pieman Conservation Area outlines the management issues associated with current recreational vehicle use and then describes the track status for each of the identified 94 vehicle tracks in the reserve. (Department of Primary Industries, Parks, Water and Environment, 2012). “

Information provided by Anni McCuaig, Manager Planning Services, Tasmania Parks and Wildlife Service (pers. comm.)

A subset of tracks providing coastal access was closed in 2011/12 due to impacts to coastal values, particularly nesting shorebirds and seabirds. Extensive surveys of sandy beaches informed the decision-making process for selecting tract closures (EJ Woehler, *pers. comm.* 2012).

Western Australia

The public has access to most areas managed by the Department of Environment and Conservation (DEC). However, access may be restricted in some areas for reasons of public safety or environmental protection including Phytophthora Dieback disease control, the safeguarding of rare flora and fauna and the protection and management of sensitive cultural sites. Where public access is restricted, this is communicated to visitors through signs and/or other forms of notices.

While on DEC-managed lands, all vehicles must be licensed under the Road Traffic Act and must comply with the regulations of this act. All vehicles are required to stay on established roads or tracks. Vehicles may only be used off a public road or track (e.g. a beach) if an area has been designated for such use.



Figure 8: Dune revegetation at work in Guilderton, Western Australia (Photo: NACC).

In the case of national parks and conservation parks, this designation is generally conferred through the preparation of a management plan, which involves extensive public participation. Similarly, off-road vehicle use in all other reserves and State Forest is not permitted, unless so designated. In other words, 'bush bashing' or travelling cross-country is not allowed.

DEC may also authorise the use of vehicles registered under the *Control of Vehicles (Off-Road Areas) Act* in specific areas, but not on public roads. These areas are established

specifically for the operation of trail and trial bikes, dune buggies and other recreational vehicles and all such vehicles must be licensed under this Act.

DEC will permit people with disabilities to use motorised vehicles off-road to enable them to access a particular area or event, providing the vehicle is registered under either the Road Traffic Act or Control of Vehicles (Off-road Areas) Act, the driver holds a current driver's licence and access of the area in question will not significantly impact on the natural environment and/or the use and enjoyment of other visitors. (Department of Conservation, 2012).

Western Australia has also provided a number of excellent case studies in addition to the Back on Track, WA State Trail Bike Strategy 2008 (see Appendix 1) and the Coastal Planning and Management Manual, a Community Guide for Protecting and Conserving the Western Australian Coast, Western Australian Planning Commission 2003 (See Appendix 2).

Case Study: 3: Control of Vehicles (Off-road Areas) Act, and its use in the City of Rockingham

The *Control of Vehicles (Off-road Areas) Act 1978* operates to low water mark. It restricts off-road vehicle activity to private land where the user has specific prior consent to use that land and to any permitted areas which are specifically set aside for recreational off road vehicles. This act covers all

National Parks and Nature Reserves throughout the state, and all metropolitan water catchment areas. The Act also operates in all metropolitan local governments, the Shire of Gingin, the Cities of Bunbury, Geraldton and Mandurah, a portion of the City of Albany, all the land on the seaward side of the Old Coast Road in the Shires of Waroona and Harvey and the seaward side of the Bussell Highway in the Shires of Capel, Busselton and Augusta – Margaret River.

Responsibility for administering and enforcing this Act is with local government, however the police are required to co-operate with Councils in this task. The Act allows for registration of unlicensed off road vehicles, and provides for areas where off road vehicle use is permitted. Information concerning the Act, and options under it, can be obtained from the Department of Local Government.

The City of Rockingham is within the area of operation of the *Control of Vehicles (Off-road Areas) Act 1978*. With the exception of permits provided to five professional fishermen, vehicles are banned on all beaches within the City. The Council works with the WA Police and Department of Conservation and Land Management to conduct weekend blitzes on off-road vehicles, especially motorcycles, in the coastal area. The blitz is advertised in advance to deter very occasional users, and uses a combination of aerial and ground crews. Offending equipment is confiscated for 12 months, so the blitz is usually effective in deterring offenders for that length of time.

New Zealand

A New Zealand review of vehicle impacts on the biota of sandy beaches and coastal dunes undertaken by the New Zealand Dept. of Conservation (Stephenson, G, 1999) concluded that:

*“The use of vehicles on coastal dunes has been demonstrated to be highly destructive to both flora and fauna, often with the first vehicle passage causing the most damage. The conclusion has been **that coastal dunes have a nil ‘carrying capacity’ for vehicles and that vehicle use of these areas should be banned altogether.***

Where vehicle access to the beach is required for emergency services or some other activity, such as boat launching, carefully designed roadways should be provided to cross the dune system. The use of vehicles on the backshore of sandy beaches has been demonstrated to be highly destructive to both flora and fauna, while the impact of vehicles on the biota of the intertidal beach has appeared to be minimal, at least when the vehicle use occurred during the day. (However, in reality the impact of vehicles on the biota of the intertidal beach has not been adequately quantified and requires further research.)

The conclusion has been that vehicle use of sandy beaches should be restricted to periods of low tide, to the area seaward of the drift line, and to daylight hours (i.e. from one hour before sunrise to one hour after sunset).” (Stephenson, G, 1999)

International Lessons

The National Management Strategy for Motorized Off-Highway Vehicle Use on Public Lands Prepared by the U.S. Department of the Interior Bureau of Land Management Washington, DC (January 2001) utilises a range of designations for the management of off-road vehicles on public lands.

Open: The BLM designates areas as “open” for intensive ORV use where there are no compelling resource protection needs, user conflicts, or public safety issues to warrant limiting cross-country travel.

Limited: The agency designates areas as “limited” where it must restrict ORV use in order to meet specific resource management objectives. These limitations may include: restricting the number or types of vehicles; limiting the time or season of use; permitted or licensed use only; limiting use to existing roads and trails; and limiting use to designated roads and trails. The BLM may place other limitations, as necessary, to protect resources, particularly in areas that motorized OHV enthusiasts use intensely or where they participate in competitive events.

Closed: The BLM designates areas as “closed” if closure to all vehicular use is necessary to protect resources, ensure visitor safety, or reduce use conflicts.

Case Study 4: KwaZulu-Natal, South Africa

In South Africa, regulations to control vehicles in coastal zone came into effect in 2002 under *National Environmental Management Act 1998*. The new regulations provided for a general prohibition on the recreational use of ORV in the coastal zone as well as providing a procedure to approve the use of vehicles in the coastal zone under specific circumstances. The regulations also specify that the recreational use of ORVs can now only take place in designated Recreational Use Areas (RUA).

The (KZN) coast (562 Km long) is a popular tourist zone and therefore one of the most important assets underpinning the economic activities of this South African Province. As with many coastal regions, the disproportionately large human settlement at the coast has led to increased pressure on the coastal zone.

A panel of experts comprising scientists and coastal zone managers were convened as a RUA Task Team. This panel identified seven coastal attributes or features with spatial dimensions that immediately disqualified an area from being considered for a RUA (Table 2). Spatial data relating to the seven exclusions were either extracted from existing data sources or were created as new overlays for the GIS project depicting the KZN coast.

Seven attributes or features of the coastal zone of KZN were identified that would disqualify such an area from being considered as a potential RUA. These included:

1. Any area outside the hard sand of the intertidal zone.
2. Fragile, rare, relict or vanishing vegetation.

3. Wildlife sanctuaries and reserves.
4. Unsuitable physical attributes of beaches or natural barriers.
5. Areas of fragile natural features or scientific interest.
6. Areas of potential beach user conflict.
7. Unidentified or unexplored key ecological processes.

Following the identification of potential RUAs, a number of other important factors needed to be addressed by a full environmental impact assessment as part of the application for a RUA. These other considerations include possible future marine protected areas, areas where subsistence fishing is prevalent, historical beach driving areas, and aesthetic value etc. (Celliers *et al.* 2004).

Collaborative Education and Enforcement

ORV management on beaches are a complex, multi-jurisdictional problem. To address this, there are several examples of “Vehicle Action Groups” (or similar collaborative partnerships) that have been formed to work towards shared goals of ecological protection, human safety and increasing education of ORV users.

Case Study 5: Collaborative Management in North Queensland, NQ Dry Tropics

In 2010, North Queensland (NQ) Dry Tropics (a non-Government natural resource management group in Queensland), established the Coastal Vehicle Management Steering Committee. The committee consisted of NQ Dry Tropics, along with partners Townsville City Council, Burdekin Shire Council, Department of Employment, Economic Development and Innovation (DEEDI), Department of Transport and Main Roads, Queensland Police Service, Department of Environment and Resource Management (DERM), Queensland Parks and Wildlife Service (QPWS), Great Barrier Reef Marine Park Authority (GBRMPA), Townsville Region Bird Observers Club and the Sea Turtle Foundation and developed an action plan with the following key steps:

1. Community Engagement & Awareness
2. Beach Regulation
3. Enforcement
4. Infrastructure and Signage
5. Complaint Procedure
6. Alternate Driving Locations
7. Future Management

Based on their ecological values, the group identified five priority ‘beach reaches’ (out of a possible 36) and these were then gazetted under local education followed up by an extensive education and enforcement campaign. (R. Allan, 2010 *pers. comm.*)

Users themselves are also sometimes open to negotiation. In 2009, Western Australia, ORV users accepted an annual five-month night time ban from Broome's Cable Beach, to address threats to nesting turtles (See Appendix 3).

Case Study 6: Vehicles in the Coastal Zone 2010 Regional Forum, South Coast Management Group, WA.

In Western Australia, the *Vehicles in the Coastal Zone 2010 Regional Forum* was hosted by South Coast Management Group (SCMG) to:

- Further inform the regional coastal strategy Southern Shores 2009-2030;
- Build on outcomes from the Vehicles in the Coastal Zone 2009 regional forum; and
- Discuss and develop strategies in vehicle management applicable to the coastal zone of the South Coast Region and other areas of regional Western Australia.

Presentations included updates from managers of the South Coast and South-West regions on vehicle management responses and concerns in their local areas including Phytophthora dieback, risk, insurance & liability and getting to know your coastal vehicle user and product.

Subsequently SCMG established a South Coast Vehicle Working Group sub-committee with the delegation of investigating and making recommendations back to the SCMG on the issues of vehicles in the coastal zone. (Dylan Gleave, Coastal, Marine and Water Program Leader, South West NRM Inc– *pers comm.* 2012).

Workable Actions from South Coast Management Group Forums are detailed in Appendix 4.

Recreational Users and Codes of Practice

For off-road vehicle users, and tour operators in particular, practical management recommendations for have been compiled and distributed extensively in the Green Guide for 4WD Tours (Buckley, 2001), which is now available for free download from the websites of various parks services and four-wheel-drive organisations such as Tread Lightly®, as well as Sustainable Tourism Cooperative Research Centre (STCRC) and International Centre for Ecotourism Research (ICER). Similar recommendations have been produced by several other organisations. For example, the NSW Department of Infrastructure, Planning and Natural Resources (DIPNR) has produced a leaflet on off-road vehicles and beaches (Hacking, 2003).

There is also the Australian National Four-Wheel Drive Council's Four Wheel Drivers Code of Ethics and Leave No Trace Australia (a national non-profit organisation dedicated to promoting and inspiring responsible outdoor travel and recreation through education, research and partnerships). Leave No Trace builds awareness, appreciation and respect for our natural and cultural heritage.

Some individual states also have peak bodies such as Four Wheel Drive Queensland that promote their own Codes of Conduct for safe and responsible four wheel driving. In Queensland, this also includes a specific program Conservation Access Recreation Environment (CARE) to encourage members to take an active interest in conserving and protecting the environment. (Four Wheel Drive Queensland, 2012).

Case Study 6: Voluntary Codes of Practice and Training in the Wide Bay Burnett, Queensland

<http://www.bmrg.org.au/information.php/2/139>

In 2009-10, funded through an Australian Government's Caring for our Country grant, the Burnett Mary Regional Group for Natural Resource Management partnered with ORV training provider P7 Off-road and local four wheel drive clubs to identify solutions to the potential negative environmental impact on the foreshore and tidal wetlands from four wheel drives. Voluntary Codes of Practice were developed as a friendly guide for off-road enthusiasts.



In 2010-11, the Code of Practice was followed up with a dedicated training program for ORV users called Better Beaches. The program includes both on beach and off beach delivery and is practical in its nature. This program focuses on strategies and techniques which can be employed by recreational and commercial users of sandy foreshores which are sustainable and have a nature based focus. Better Beaches has now been rolled out in both the Burnett Mary and in adjacent South East Queensland.

Community-based Management

In many areas, activities have been undertaken to restrict ORVs to defined routes or to exclude them from sensitive areas. These forms of management include bollards, fencing and vegetation swales in conjunction with community education programs. The success of these programs is defined by the location (accessibility), level of community stewardship (and hence policing) and available resources e.g. to replace traditional post and wire fencing with concrete and "rhino" fencing. Sadly, many of these programs are vandalised or are met with resistance from ORV users.



Figure 9: Blocking beach access, Middle Beach, South Australia (Photo: District Council of Mallala)

The challenges?

1. There is confusion over jurisdiction, legislation and the roles and responsibilities of stakeholders.
2. There is a lack of awareness and clarity around where and when a beach is considered a road and which beaches (in which jurisdictions) are actually gazetted roads – for example Fraser Island.
3. There is a poor level of understanding of the potential impacts of ORVs on beaches and tidal wetlands – particularly on biodiversity and coastal erosion.
4. Coastal development and visitor numbers are increasing across all areas, increasing levels of pressure across all accessible areas.
5. Communication - ORV users come from all areas of our society – including international backpackers, domestic tourists, 4WD club members, fishermen and other recreational users.
6. Voluntary codes of conduct may have a moral imperative but cannot be enforced directly.
7. There are many ORV users driving on beaches who are not a part of affiliated clubs that adhere to voluntary codes of conduct.
8. Restrictions on beach access or recreational activities can be costly in terms of diminished recreational opportunities and social acceptance (Knight and Gurtzwiller, 1995).
9. Variation in the existence and enforcement of legislation and/or by-laws.
10. Variation in capacity and jurisdiction of police regarding beaches as roads.
11. Moving the problem elsewhere – displaced ORV users may simply move their activities interstate or to an unregulated section of beach (tidal wetland or intertidal area).



Figure 10: Typical sight on a populated beach. As demonstrated by the person on the towel between the 4WD, this area can easily be accessed by foot (Photo: Lake Macquarie City Council, NSW).

Both State and Regional Councils have cited issues relating to their ability to enforce legislation or by-laws. It was recognised that different agencies had different enforcement abilities. Not all enforcement powers available are practical or able to be implemented.

Whilst the Police have the power to stop a vehicle and issue a range of notices; enforcement of the Traffic Regulations on beaches is a low priority (understandably) for the Police. Some State Government officers have the

ability to stop vehicles on beaches but only for a narrow range of issues. With Regional Councils citing a lack of resources to provide the required level of staffing needed to enforce local by-laws.

Recommendations:

It is suggested that a whole of Government approach should be adopted to investigate and respond to the range of issues associated with ORVs using beaches. Nationally, the challenges of managing off-road vehicles are common across most coastal local government jurisdictions and this warrants a national and coordinated approach involving a range of key stakeholders including the National Local Government Associations (NLGA), other state and territory bodies and the Australian Government.

Legislative approaches (such as the Western Australian Control of Vehicles [Off-Road Areas] Act and the Victorian Land Conservation [Vehicle Control] Act 1972) can provide effective mechanisms for local government to manage off road vehicle issues. Legislative approaches need to be combined with planning and community awareness support for local jurisdictions.

Regionally based, multi-stakeholder management approaches to vehicle use (4WD, quad and trail bike) in the coastal zone should be developed and adopted, to ensure the conservation of both sites and species of state and national significance are protected.

The management of off-road vehicles may have direct relationship to management of nationally listed threatened species (e.g. Migratory Shorebirds, turtles) and as such nationally coordinated responses should be considered as part of recovery plan implementation and review.

A combination of access restriction, enforcement and opportunity approaches is necessary. Provision of off-road trail opportunities not linked to any adequate enforcement is unlikely to deter individuals to access areas which may be damaged.

At state and local levels, there is a need to consider reform of development, open space and zoning, policies to allow adequate planning options and zoning and regulation. The inclusion of designations for the management of off-road vehicles would assist, (e.g. open, limited, closed access).

There are relevant safety aspects of off road vehicle management which need attention, at a national level, additionally increases in off-road vehicle usage may increase resourcing on strain on regional health and emergency services due to accident and injury response (SCMG 2009). Environmental disease management and quarantine issues need to be considered with regard to management of off road vehicles (e.g. Phytophthora Dieback).

The use of the spatial mapping and aerial/satellite imagery can assist in assessment of the problem and prioritisation of resourcing and responses and has been useful at local levels. Consideration of a national coordinated approach may be beneficial. The prescribed agency Geoscience Australia is already involved in providing key spatial information of Australia including with response to rapid and slow onset hazards and the detection of change and may have a role in such an approach.

Options:

The options below are provided only to inform the discussion, they are not the only options, nor should they be considered the ultimate solutions.

1. Do nothing – retain the *status quo*. ORV management in coastal areas continues to fall to State or Council jurisdiction.
2. Provide a national framework for the management of Off Road Vehicles on beaches providing minimum standards for coastal land managers to ensure the protection and conservation of listed flora and fauna under the *Environmental Protection & Biodiversity Conservation Act 1999* establishing national guidelines (except for emergency access) such as:
 - Beach closures to all ORV for two hours either side of high tides.
 - Seasonal closures for shorebird and turtle nesting beaches for the duration of nesting and chick brooding (September to March).
3. Provide specific national legislation for the management of Off Road Vehicles on beaches through new or amendment of existing legislation for example the amendment of the National Road Traffic Rules.

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Appendix 1: Back on Track, Western Australian State Trail Bike Strategy 2008.

Excerpt from the Executive Summary:

WA State Trail Bike Strategy, Back on Track, A report commissioned for the Government of Western Australia, Prepared by: Trail Bike Management Australia and Motorcycling WA, Full Report June 2008, Department of Environment and Conservation, Department of Sport and Recreation, Department for Planning and Infrastructure, Department of Local Government and Regional Development

Outcome

A reduction in trail and quad bike anti-social behaviour is developed through a coordinated approach whilst also assisting in placing trail and quad bike riding on a sustainable footing.

A series of recommendations were formulated around six **Key Focus Areas (KFA)**. The KFA's aim is to reduce the concerns of the community whilst also beginning the transition of unplanned, unmanaged and unsustainable riding to planned, managed and sustainable. It is essential that programs are implemented across all Key Focus Areas in order to have the full impact on resolving these issues.

KFA1: Insurance, Liability and Risk Management

In order for facilities to be provided by land managers, the issues of insurance, liability and risk management must be addressed.

Recommendations include:

- Development of a Master Risk Management Planning Kit for ORV Areas and designated trails, including an education program for Local Government.
- Risk awareness education for riders
- Extended Third Party Personal insurance cover.
- State underwriting of liability to provide protection to local Shires and Councils.
- Improved monitoring of major accidents and injuries

KFA2: Trails Planning

Designated trails and venues must be planned, developed and maintained to attract trail bike riders and to ensure minimal environment and community impact.

Recommendations include:

- Upgrade existing ORV areas to safely attract more riders.
- Transition to the concept of designated trails to prevent proliferation of user created trails.
- Provide more opportunities for legal recreational riding to reduce incidence of illegal riding which includes the designation of selected public trails for family riding.
- Local authorities to include trail bike riding requirements in Master Trails Planning. WA Planning Commission to consider recreational trail bike riding in land planning.

KFA3: Managing for Sustainability

In order to develop sustainability, the issues of governance, land and trail management, noise regulation and evaluation need to be addressed.

Recommendations include:

- Establish a Ministerial Taskforce to implement the recommendations across Government portfolios, a revised Off- Road Vehicle Advisory Committee, Program Manager and a broad Reference Group to provide governance and agency mandate.
- Develop guidelines for use and management of tracks. Establish limits of acceptable impact on a per area basis. Initiate Local Management Committees to oversee.
- Plan noise reduction via buffers and placement when designing ORV areas and trail systems. Lower acceptable exhaust noise levels and ban sale of non-complying after-market exhausts.
- Develop an evaluation program to monitor trail impacts and assess results of initiatives.

KFA4: Changing Behaviours

Programs are proposed using community based social marketing techniques, education, self - regulation and finally enforcement.

- Develop a 'Back on Track' website as an interface between trail bike riders, land managers and interested community members.
- Develop information / education materials as ORV Registration Kit for distribution by associations, clubs, and retailers.
- Accreditation program for trail bike dealers covering legal, social and environmental issues. Target Chinese import segment to ensure appropriate information is passed to consumers.
- Develop a "Hot Spot Register" reporting facility for the general community.
- Formation of a specialised ORV Compliance Unit with Authorised Officers and 'Honorary Inspectors' as provided for under the *Control Of Vehicles (Off- Road Areas) Act 1978*.
- Increase fines and penalties (including confiscation), with enforcement emphasis on those actions that cause actual damage to the environment or excessive noise.

KFA5: Registration and Licensing

Trail bike riding must be better managed which requires increased regulation with registration, licensing and enforcement.

- Compulsory point of sale ORV registration for all vehicles that are not registered A or B Class.
- Develop a Third Party Personal insurance model to suit an extended B Class Registration and ORV Registration
- Conduct a study into the Junior Riders' Licence (Early Learners' Permit) concept.
- Expand terms of reference of review of the *Control Of Vehicles (Off-Road Areas) Act 1978*.

KFA6: Funding Models

To ensure implementation, sustainability and management a recurrent funding stream is required.

- Cost Estimates for the various projects to be prepared and a submission made to the State Government for nonrecurring funding to get 'back on track'.
- Additional resources need to be made available to those agencies taking on additional tasks to fulfil the requirements of this Strategy.

- Establish an 'Off-Road Vehicle Trust Fund' to collect licence fees, revenue from fines and infringements and State and Federal grants.
- Expand the existing Lotterywest Trails Grant to include motorised trails, or establish an equivalent motorised grant fund.
- Introduce an 'area use' fee for areas where facilities and maintenance are provided.
- Creation of an ORV Grant Scheme that can be accessed by local governments, local communities and off-road vehicle bodies, managed by the ORV Advisory Committee.

The Risks of Inaction

It is important to consider the consequences of inaction, in addressing the myriad of issues raised in this report.

- **Political consequences** – The community has an expectation of government at all levels to address community concerns. DEC's reputation as a defender of the environment will be negatively impacted. The police, local government and state government will come under increasing pressure from resident groups and it can be expected that all sides of the issue will progressively become more organised and determined to effect change.
- **An incomplete solution** – Attacking the issue with anything less than a comprehensive approach is not likely to achieve results, as each Key Focus Area identified in the Strategy relies on the support of the others. In summary, this issue has been increasing over the last thirty years, and without serious attention, conflict, and serious injury will continue to increase.
- **Environmental consequences** – Trail bike riders will continue to disperse into local bushland areas with significant long term damage to the environment and the diverting of conservation resources into rehabilitation works.
- **Social consequences** – An escalation of inappropriate or incompatible use, with increased conflict between trails users, complaints by neighbours and frustration and stress of land managers. Without attention to ORV design and risk management preventable injuries and deaths will continue to occur.
- **Economic consequences** – The cost of enforcement will be a growing burden on land managers (private and public). Trail conflict could have a negative impact on business opportunities, e.g. Bibbulmun Track. Insurance claims and litigation directed towards land managers can be expected to increase, and this will have a flow-on effect to the community through the passing on of higher insurance premiums

Appendix 2: Coastal Planning and Management Manual, a Community Guide for Protecting and Conserving the Western Australian Coast, Western Australian Planning Commission 2003.

Approaches to managing the impacts of coastal vehicle use differ significantly based on the reasons vehicles are accessing coastal areas. For example, if vehicles are transporting people to the coast, you could consider creating a car parking area off the beach and behind dunes to alleviate the problem. However, if vehicles are accessing the beach as a recreation activity in itself, it would not be appropriate to restrict access to the beach without considering of the implications of this, both on the site itself, and adjacent areas.

Both licensed and unlicensed (off-road) vehicles are used in coastal areas. Licensed vehicles, which are most common, are generally easier to manage. Local Government Rangers (staff) can identify the vehicle, and track the owner through the licence plate. Unlicensed Off-Road Vehicles (ORVs) are more difficult. They seldom carry unique identification, and many, such as motorbikes and 4WD bikes are very fast, making identification or apprehension of the driver difficult.

Some information on the legislation specific to vehicle management is provided in the example below, as well as an outline of how the City of Rockingham (see Case study 3) uses this legislation to manage coastal vehicle use in their area.

Coastal Planning and Management Manual A community guide for protecting and conserving the Western Australian coast	
UNCONTROLLED VEHICLE USE	
Strategies	Implementation Considerations
<p>PLANNING <i>Planning can determine the type of vehicle control that is required, which coastal features require road links, and whether access to all or part of the coast should be prohibited.</i></p>	<p>Need to consider:</p> <ul style="list-style-type: none"> • <i>the type and intensity of vehicle uses</i> • <i>frequency and timing i.e. when are the busiest times?</i> • <i>linked activities, such as fishing, surfing or boating</i> • <i>vehicle movement patterns and coastal access requirements, both within and adjacent to the site</i> • <i>the capacity of the area to accommodate Vehicles</i> • <i>designation of areas suitable for off-road vehicle activities</i> • <i>traffic management and accident liability issues.</i>
<p>ON-GROUND WORKS <i>Formalising vehicle access ways, or improving damaged sections of existing tracks can alleviate some of the impacts of vehicles along the coast.</i></p> <p><i>Where vehicles are to be restricted from all or part of the coast, car parks linked to pedestrian</i></p>	<p>Need to consider:</p> <ul style="list-style-type: none"> • <i>the impacts of improving coastal access through track formalisation or upgrading, on the overall use of the area, and the likelihood of a resulting increase in overall use.</i> • <i>financial and labour requirements for track maintenance</i>

<p><i>paths can formalise and direct vehicle movement into and around the site.</i></p> <p><i>Regular monitoring of off-road vehicle use, regular surveys for new tracks followed by erection of barriers and rehabilitation work may be required to deter drivers, and to allow problem areas to be protected.</i></p>	<ul style="list-style-type: none"> • <i>closing off and rehabilitating unwanted tracks</i> • <i>the possibility of involving 4WD user groups in track rehabilitation.</i>
<p>REGULATION / ENFORCEMENT</p> <p><i>Local laws can designate where vehicles are permitted, and establish penalties for infringement. Local laws operate to high water mark, and responsibility for enforcement is with local government.</i></p> <p><i>The Control of Vehicles (Off-road Areas) Act, in western Australia, can be used in some areas to assist with vehicle control.</i></p>	<p>Need to consider:</p> <ul style="list-style-type: none"> • <i>the most appropriate regulation for the location and type of users</i> • <i>the capacity to enforce regulations, and fine and prosecute offenders</i> • <i>the need for fines associated with local laws to be a significant deterrent to offenders.</i>
<p>EDUCATION AND AWARENESS</p> <p><i>Education strategies should seek to work in conjunction with local 4WD or interest groups, to raise awareness about responsible use of vehicles in coastal areas. The provision of maps of the area which clearly identify 4WD tracks and warn against driving off designated tracks can assist with ensuring users understand acceptable use of vehicles</i></p>	<p>Need to consider:</p> <ul style="list-style-type: none"> • <i>communication methods most likely to reach your target audience</i> • <i>establishing a volunteer ranger program to educate users and issue warnings</i> • <i>the type of users and reasons for use of vehicles along the coast.</i>
<p>Coastal Planning and Management Manual, A community guide for protecting and conserving the Western Australian coast</p>	
<p>CONFLICTS BETWEEN RECREATIONAL USERS</p>	
<p>PLANNING</p> <p><i>Preparing a management plan for an area will allow conflicts to be identified. Planning processes will be most effective if they include stakeholders and user groups in planning for an area.</i></p> <p><i>Planning can reduce conflicts through the designation of zones for particular activities; recommending site design aspects that will reduce conflicts; or prohibiting incompatible activities.</i></p> <p><i>Planning should also encompass a broader assessment of activities in the region to identify other areas that may be more suitable for certain activities to take place without conflict.</i></p>	<p>Need to consider:</p> <ul style="list-style-type: none"> • <i>the patterns of use of the site</i> • <i>options for resolving conflicts by separating incompatible activities, either in space or in time</i> • <i>whether changes to site design and layout can help to address conflicts. For example, appropriate access to car parks and toilets/change rooms to avoid pedestrians having to interact with vehicles.</i>
<p>ON GROUND WORKS</p>	<p>Need to consider:</p>

<p><i>Installing infrastructure to accommodate particular activities can help to reduce conflict between groups. For example, providing a windsurfing rig-up area or a boat ramp can assist these users to function effectively without disturbing others.</i></p> <p><i>If zones of activity are established, fencing and signage can help to control and direct movement into and around the site.</i></p>	<ul style="list-style-type: none"> • <i>the use of fencing, walk trails, vegetation and signage to guide site use</i> • <i>patterns of use of the site and the needs of particular user groups.</i>
<p>REGULATION / ENFORCEMENT</p> <p><i>Local laws can be established to separate activities into designated zones, and/or prohibit certain activities.</i></p>	<p>Need to consider:</p> <ul style="list-style-type: none"> • <i>community support for introduced regulations</i> • <i>the use of signage to ensure awareness about regulation</i> • <i>the capacity to enforce regulations.</i>
<p>EDUCATION AND AWARENESS</p> <p><i>A site map at a focal point, for example, in the main car park, can inform visitors of the overall plan and areas designated for certain activities. Signage can also inform users of any regulations that relate to use of the site. Where conflicts are caused due to irresponsible, or inconsiderate actions by one or more groups of users, signage can be targeted to particular groups to encourage more responsible behaviour.</i></p> <p><i>Key user groups and the broader community should be encouraged to be involved in planning and onground works to develop a sense of ownership and an understanding of the needs of various groups and to encourage compromise.</i></p>	<p>Need to consider:</p> <ul style="list-style-type: none"> • <i>the opportunities for community involvement in management of the site</i> • <i>the establishment of effective community consultation processes</i> • <i>design of signage or other educational material to explain why regulations are necessary.</i>

Appendix 3: Liaison with Local Users in Western Australia

<http://www.watoday.com.au/wa-news/fourwheeldrive-ban-for-cable-beach-20090318-91zn.html>

Four-wheel-drive ban for Cable Beach

March 19, 2009

Chris Thomson

Four-wheel-drives face an annual five-month night time ban from Broome's Cable Beach, because Council officials say off-road enthusiasts are threatening the town's turtles. Broome Shire councillors will tonight debate a plan to ban four-wheel-drives from the section of Cable Beach that runs north from a concrete ramp at a local landmark called 'The Rocks' - in front of the luxury Cable Beach Club Resort.

Under the plan, a swing gate would stop access to the beach between 8pm and 7am, and during the two hours on both sides of high tide, from October 1 to February 28 each year. A sign reading "Beach closed to vehicles - turtle breeding season" would be erected. Broome council would ask the WA Government to erect posts in a one kilometre stretch north of The Rocks to discourage illicit four-wheel-drive movement. A council document obtained by WAtoday.com.au says that four-wheel-drives crush marine turtle nests and forge wheel ruts that impede or trap baby turtles during the spring/summer breeding season.

Acting Broome regional manager for Conservation Volunteers Australia, Cristina Vicente, said survival of the threatened Flatback Turtle was of most concern on the beach. "They are really, really special because of the seven species of marine turtles in the world, the Flatback is the only one you can only find in Australia," Ms Vicente said. She added the species was 200 million years old, and bred on beaches from The Kimberley, around Australia's Top End to North Queensland.

Broome Shire president Graeme Campbell refused to reveal how he'd be voting when the ban is debated tonight but acknowledged the move had polarised local opinion. "The decision of council will be viewed with great interest by the community," he said. "I believe that with the issue of cars on the beach and turtle nesting, management's the key."

The council document raised the spectre, but stopped short of recommending, charging a fee to access the beach in a bid to reduce four-wheel-drive demand. Council staffers also considered placing tyre spikes on the beach to control recalcitrant off-roaders, but rejected this option because of "their potential to cause unacceptable damage to tyres and a potential safety risk to pedestrians". The internationally-known camels that lug tourists up the pristine beach would sidestep the ban because council officials say the hump-back beasts have "evolved for minimal impact on soft surfaces".

WA Four-wheel-drive Association spokesman Mark Skeels said a ban would not phase his members - because The Rocks were unpassable in the wet summer months anyway, except during very low tides. "If it's a sunrise to sunset restriction and it's going to look after the turtles, then go for it," Mr Skeels said. "But if it was to extend in any way past the turtle season, we would have vast objections."

Appendix 4: Workable Actions from South Coast Management Group Forums

The South Coast Management Group (SCMG) in Western Australia was formed in the mid 1990's by Local Government and community representatives to provide a forum for the discussion of issues relating to coastal and marine planning and management and to actively promote best practice coastal management along the South Coast of Western Australia. The group has been proactive in management and forums regarding the range of coastal management issues including off-road vehicles. A range of deliberations and workshops undertaken by the South Coast Management Group have produced some workable actions from South Coast Management Group Forums.

Actions identified for the SCMG would be similar to strategic approaches necessary to be undertaken by peak bodies or organisations seeking better management of ORVs. Some of these (edited for this submission) included:

- Develop a whole-of-region approach to managing vehicles on the coast.
- Develop guidelines for by-laws for Local Governments to implement to manage vehicles in the coastal zone.
- Source funding beyond NRM sources.
- Investigate Environmental Levy for ratepayers. LGs
- Ensure coastal planning documents are up-to-date.
- Act proactively on outcomes of advocacy and education.

Advocacy

- Seek responses in regard to current forward policy from State Government agencies and both Government and Opposition Members of Parliament.
- Consider responses and possible meetings to discuss issue further.
- Determine legislative framework for advocacy approach.
- Seek views of other coastal organisations and appeal for support.
- Advocate for differential licences for off-road driving
- Work with advertisers and vehicle distributors/makers to promote appropriate vehicle use.
- Seek promotion of responsible off-road driving with other groups and businesses e.g. insurance company could provide financial incentive on premiums if driver is trained.

Planning and management

- Define information needs for planning of zoning for recreational uses, e.g. dieback status, track extent and condition, recreational usage, risk assessment, environmental sensitivities. Seek assistance from relevant agencies.
- Seek funding to acquire information not yet available.
- Create a decision-making toolkit for planning of zoning to be utilised by Local Governments.
- Develop consistent off-road vehicle signage for the region that can be used beyond the coast.

Education

- Audit available educational information.
- Encourage research to find and fill the gaps of education strategy.

- Create educational pack for vehicle distributors/makers.
- Encourage vehicle distributors to provide free training by offering potential buyers an instructional test-drive in the basics of responsible off-road driving.
- Develop an education program to provide regular demonstration and training opportunities.
- Develop curriculum pack for schools with DVD.
- Develop information brochures suitable for visitors and distribute through regional groups and by Local Governments.

Capacity

- Facilitate knowledge sharing through an annual regional forum, inviting user groups, legislators and participants from other regions; local forums, perhaps combined with training.
- State forums, potentially around relevant State conferences.