MOONBI 128

MOONBI is the name given by the Butchalla Aborigines to the central part of their homeland, Fraser Island or "Kgari"
MOONBI is the newsletter of Fraser Island Defenders Organization Limited
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MFIDO's Biennial Conference, *"Fraser Island a Natural Laboratory"* held in August was judged to be the most successful yet with an interesting array of speakers, poster presentations, a good attendance representing a diverse array of stakeholders and some very pleasant and healthy informal discussion. Hon Barry Jones keynote address as well as all of the other speakers stimulated much thought and conversation. FIDO is following up many of the issues raised at the conference including work on the fens, seeking to get projects underway to monitor mangroves on the island side of Great Sandy Strait and to establish a more substantial data base on island invertebrates. Pp2-3 has two summaries of the conference from John Sinclair and son Andrew who delivered the wrap.

Conference follow-up: FIDO is following up many of the issues raised at the conference. We are proposing to assist in a mangrove survey on the World Heritage side of Great Sandy Strait. We are actively supporting a study of the fens and will host a visit by scientists from the International Mire Conservation Group to examine the Moon Point fens in November. FIDO is also proposing to support a more detailed study of the invertebrates of Fraser Island that represent the greatest range of biodiversity on Fraser Island.

Planning *Sun, Sea, Sand*: FIDO has already begun planning our 6th Biennial Conference tentatively planned for Wednesday, 13th August with a theme of *Sun*, *Sea*, *Sand* based on the format of the 2013 conference. Prof Tim Flannery has provisionally agreed to be the keynote speaker.

Volunteer projects: For the first time we can now say that we think we are getting on top of the weed problems in Eurong although it will require considerable vigilance and on-going maintenance effort to keep the weeds under control. FIDO's plans to make an intensive effort to tackle the major weed problem at Happy Valley has been set back because we failed to get the Caring for Country grant we sought for the current 12 month period. We hope for a Friends of Parks grants to work on weeds outside the Happy Valley and to begin work on Stage 1 of the George Haddock Track. By rejecting many valid project applications, the Commonwealth continues a tradition of treating Fraser Island like Cinderella.

Volunteers needed: FIDO urges anyone interested in participating to register their interest to be notified by Email of any forthcoming programs. We are willing to engage any volunteers whether or not they are FIDO members as long as they willing and reasonably fit and willing. The projects planned cover a diversity of tasks that should find gainful work for fit and willing persons regardless previous experience. These volunteer programs are not all work and no play and enable everyone to get to see and enjoy Fraser Island as well as providing satisfying achievements. For anyone to register for notification, Email: john@fido.org.au

FINIA: In 2005 FIDO helped establish the Fraser Island Natural Integrity Alliance that is a collaboration of government and non-government agencies that share an interest in protecting the natural integrity of the island. FINIA has since developed into a most positive body and continues to develop closer partnerships and cooperation in addressing Fraser Island issues. FINIA now has a web site and has lots of positive news stories. See: www.finia.org.au

Monitoring: MOONBI 127 reported on the photo monitoring program for Lake McKenzie, Boorangoora's beach. This issue reports again on the alarming quantity of sediment depositions washed from the roads. Now that we are getting some measure of the volumes involved we find that in some cases we have underestimated the problem. Of greatest concern is the hitherto greatly underestimated volume of sediment pouring into Lake McKenzie (Boorangoora) See story on p7 and details: www.fido.org.au

MOONBI can't cover all of the issues involving FIDO but brings some focus to some key issues and some interesting stories such as Laura Simmons study of Phaius orchids and the CSIRO information of the erosion of sandy shorelines as well as the decline of fish stocks and killer whales off Fraser

Backgrounders: Since FIDO's bush regeneration work has until now been focused on the epicentres of weed infestations, the townships, we sought out a history of Eurong and Happy Valley to help us understand the origins of the problems. Since there hasn't been any clear history recorded, FIDO has produced the first history for each of these two villages that have such a significant footprint on the island as a whole.

FIDO VP, Terry Hampson introducing Dr Greg Baxter's dingo presentation at the Natural Lab Conference 8th August, 2013

In This Issue

Conference examines Fraser's values

The Fifth Biennial Fraser Island Conference held in Brisbane on 8th August has helped strengthen the case for Fraser Island becoming a national laboratory for studying the impact of climate change.

Climate Change: The impact of climate change was either explicit or implicit in a number of presentations at the conference particularly in the keynote address by Hon. Dr Barry Jones and Professor Roger Kitching currently a coordinating lead author engaged in production of the next report of the Intergovernmental Panel on Climate Change (IPCC). FIDO has produced a poster showing the impacts of climate change already occurring on Fraser Island.

Losing trees: FIDO has identified three critical areas where the impact of climate change on Fraser Island may be at least as severe as the much more publicized impacts on the Great Barrier Reef. On Fraser Island the fact that four major tree species, blackbutt, satinay, tallowwoods and scribbly gums, are already at the northern limit of their range makes them particularly vulnerable. These constitute about half of all the trees growing in Fraser Island forests. Other changes due to coastal erosion are already becoming obvious.

Losing sandblows: Also attending the conference was Israeli geomorphologist who had made the prediction at a previous Fraser Island Conference after an intensive study of the sandblows on Fraser Island, that at the current rate of change all of the sandblows could disappear by the end of the 21st century as a result of climate change allowing patches of bare sand to be overtaken by vegetation.

Invertebrates: Prof Kitching drew attention to the lack of knowledge of Fraser Island's invertebrate fauna which are particularly sensitive to climate change. Prof Kitching cited examples of insect species once only being located in tropical north Queensland now being found in Brisbane and said we need more studies of invertebrates to track the impacts of climate change. He pointed out that insects like plants are ectothermic. He said that developmental temperature thresholds are critical. He noted that 99% of biodiversity is comprised of invertebrates and, on land, 99% of them are insects, but that the insect fauna of Fraser is very poorly known. He described Fraser Island as fine patchwork of different habitats crying out for a systematic landscape ecological survey. FIDO has taken up the challenge and is moving to encourage more studies of invertebrates on Fraser Island.

This Cooloola Monster is one rare insect discovered on Fraser Island but not confined to Fraser Island. Photo by Eric Zillman who discovered them while working as a ranger establishing Dundubara Campground.

All of the scientists at the conference as well as leading Australian artist Elizabeth Cummings focused on the value of the rich natural resources of Fraser Island that needed to be properly valued rather than being seen only as something to be exploited for tourism

As well as changes to the flora and fauna, the conference also heard that there are implications for both the mangroves of Great Sandy Strait and the fens of Fraser Island and Cooloola from climate change. All of the scientists stressed the need to gather more baseline data now that can be used to measure the rate of change and this led to a few more people volunteering to assist in projects to assist the scientists gather more data.

The conference brought together both supporters and some of the more vocal critics of the Dingo Management Strategy to hear Dr Greg Baxter present some of the ongoing analysis of the raw data provided to the University of Queensland by the Queensland Parks and Wildlife Service. He closely examined the movements of the 18 dingoes that had been fitted with collars and tracked by satellite for 8 months,

Panel presentations on topics ranging from declining fish stocks and Australia's largest orchid to some volunteer projects and visitor response to the dingo management strategy were part of the features of the conference.

The climate change theme is likely to recur in the 2015 Fraser Island ***"Sun, Sea and Sand"*** Conference when leading Scientist, Prof Tim Flannery has agreed to be the Keynote Speaker.

FIDO is seeking expressions of interest from volunteers prepared to assist in scientific surveys on Fraser Island as field assistants. Our first project is working on the fens.

Conference Rapporteur Wrap

by Andrew Sinclair *(who Andrew compressed 8 hours into about 3 minutes.)*

Dr Greg Baxter's presentation on *Dingo research* showed us there are many very complex management issues that can benefit from close scientific scrutiny. Such research can generate even more questions that need answering. Greg has shown us how, where and when dingoes travel. He's learned what they do. One of his students, Naomi, is doing further analysis of the collar tracking data to find out why they do it. Perhaps she can present this at the next conference.

Science is about how we explain the world. What people think about dingos was the subject of research by *Rebecca Dowdy's* honours project. Her visitor survey shows most visitors, especially overseas ones, think it is we humans that need better management.

Lindsay Dines presented some layman's observations that lead him to pose questions about possible declines in fish catches and changes in behaviour due to commercial fishing and possible effects on birds and dolphins as well as the target species themselves.

The practical application of previous observations and research through physical effort to remove weeds and replace them with native species was presented by *Michael Lowe*. Using community engagement to take lessons back into the field was his focus.

The Hon. Barry Jones AO was uniquely placed to give us some insight into the environment, science, politics and heritage. Fraser Island is a place to use science to study the environment and perhaps get us back to the same focus that we had 30 years ago. He gave us a modern example of the ebbs and flows of efforts relating to climate change. He illustrated how short-termism and politics driven by slogans and opinion is not conducive to evidence based planning. He compared scientific management principles and the outcomes you can expect when you don't require the politicians and managers to explain and justify their actions.

Laura Simmons managed well with a hard act to follow. She cheated by showing pretty pictures of the beautiful Swamp Orchid and explained its role as the canary-in-the-coalmine in a climate change scenario.

Dr Angela Wardell-Johnson studies people. She sought our help as part of her project to identify and map the values associated with Fraser Island.

John Sinclair presented early results of monitoring sand movement down roads and into lakes.

Dr Patrick Moss gathers stones. Well he studies them. His work on the patterned (and unpatterned) Fens of the Great Sandy Region will allow him to research his way to retirement due to the huge amount of research needed.. The Fens (not Bogs thank you) will help us understand Fraser Island and the broader impact of humans and other changes in the landscape in the last 35,000 years.

We were enchanted and inspired by **Elizabeth Cummings** showing us a myriad of other ways of looking at what we are all so familiar with. In showing us some of her work and that of some other famous artists, she showed how the natural environment directly impacted on the architecture of the built environment. She proved there is beauty in mangroves.

In confessing he hadn't been to Fraser, **Professor Roger Kitching AO** told us "Good data costs money". He showed us a view of Fraser from a global perspective which made it seem more fragile when facing the 'greatest moral challenge of a generation'. A change is coming and it is vital to study it. He showed us how a baseline is essential to monitoring change and filling knowledge gaps.

Jock McKenzie produced just such a baseline study of mangroves from the air across a vast area of Australia. Part of that was the Sandy Strait and his enthusiastic and detailed presentation showed that mangroves are a great indicator of climate change and other impacts as well as an efficient "Carbon Capture and Storage System". But his takeaway line was simple – No mangroves, no fish.

That was the final statement to a very productive and enjoyable conference which an energized FIDO will continue to follow through during the next two years. We are particularly keen to follow up on fens.

Fraser Island's Swamp Orchid

The beautiful **Australian Swamp Orchid, *Phaius australis*** is an iconic feature of coastal swamps. FIDO's Laura Simmons is undertaking a PhD research project on *Phaius australis*. The aims of the study are twofold. Firstly, to assess the effect of climate and fragmentation on the genetics, ecology and reproduction of the species across the range, Laura spent time on Fraser Island in 2012 assessing populations and collected samples for genetic analysis. These are Australia's largest orchids and they occur in a disjointed fashion in coastal wetlands from north Queensland to South West Rocks in New South Wales. Several populations occur on Fraser Island. Laura continues describing her project on page 8

Dingoes remain a big talking point

The revised Dingo Management Strategy was welcomed by most dingophiles when it was released on Fraser Island by the National Park and Environment Ministers in July. Since then some revisionists have questioned the strategy and the data that it is based on. FIDO has been mystified by the amount of energy and expense spent by a very frugal Newman Government in scrutinizing the Fraser Island Dingo Management Strategy. The three Fraser Island Advisory Committees, the Fraser Island Association as well as FIDO have been overwhelmingly in favour of retaining the current strategy. It appears to be working well and the question was asked,* "If it ain't broke, why fix it?" *Evidence of the health of dingoes and their role in the total island ecology was presented to the Biennial Fraser Island Conference on 8th August. The conference was attended by a number of members of the Save the Fraser Island Dingoes group.

Some key points of the Reviewed Strategy

The Fraser Island Dingo Conservation and Risk Management Strategy features four programs—risk intervention, communication and education, research, and evaluation and review—to provide strong direction for effective action under an implementation plan. There are clear objectives and measurable targets to track progress and evaluate performance. The strategy draws on the strengths of the previous strategy, coupled with additional initiatives to address the concerns, knowledge gaps and information flows raised in the review, in order to deliver a future where dingoes and humans can coexist safely.

The findings of the review determined that the objectives and strategies of the 2006 strategy were largely appropriate, with an opportunity to improve outcomes through more attention to dingo welfare and building community understanding and acceptance. The use of fencing to separate humans from dingoes and the ongoing education program were highlighted as effectively achieving sound outcomes. Further, there was strong public support for increased enforcement to maximize compliance with laws against feeding or interfering with dingoes.

In addition to human safety, dingo welfare was similarly a primary consideration when forming recommendations. This has led to the recommendation that certain management practices be officially stopped or modified. Some of this advice has already been adopted, such as formally halting the use of slingshots for hazing (pending further research advances to be authorized by management) and the modification of dingo tagging practices so that animals that weigh less than approximately 10 kilograms (kg) are no longer targeted for ear-tagging. Appropriate training of rangers in dingo behaviour and the subsequent reporting of the different behavioural types that feed into the management of problem individuals was also considered important in addressing dingo welfare issues.

Analysis of some community concerns regarding the welfare of dingoes was found to be unsubstantiated. This included concerns about the health of naturally thin dingoes and the protocols and practices associated with dealing with problem animals. The review highlighted that euthanasia protocols and practices were appropriate and followed best practice. The review recommended against any supplementary feeding, unless the viability of the dingo population could be scientifically demonstrated to be compromised.

Negative response: Jennifer Parkhurst who was fined $40,000 for illegally feeding dingoes and whose sob story has been featured widely, labelled the Strategy review as a bitter disappointment and said that it was *"compromised in that it lacked genuine independence"* It didn't agree with her position. Despite data to the contrary she continues to describe Fraser Island dingoes as *"emaciated"*.

http://www.ehp.qld.gov.au/wildlife/livingwith/dingoes/pdf/dingo-management-strategy.pdf See full strategy on line.

Interpretation of Dingo Data

As part of the management of Fraser Island dingoes under the management plan, the QPWS has initiated a number of research projects. One of those was designed to determine the movements of dingoes on the island. This presentation will report on the results of that satellite-tracking program where 18 dingoes were captured, fitted with satellite collars and tracked for up to 8 months.

Dr Greg Baxter, Senior Lecturer in Wildlife Ecology at the Gatton Campus of the University of Queensland and member of the Fraser Island Scientific Advisory Committee presented the latest analysis of Fraser Island dingo behaviour.

What was impressive by the vast collection of data from the dingoes was how comprehensively they used the whole island indicating that the dingoes are indeed playing a vital ecological role on Fraser Island as the top order predator and this role is essential to the ecological health of the island as a whole. The tracking data was incredibly informative and was able to demonstrate different behaviour and range of animals based on age and gender as well as their integration into a pack and whether they were forest dwellers or not. The study showed that home ranges varied greatly with one 10 year old male dingo having a range over home range of 185,000 ha. The range of the animals was also influenced by the stage of the breeding cycle and whether it was night or day.

The following diagram shows the range of a 10 year old male dingo and how much it ranged over the southern half of the island appearing as much in the forest as near human settlements.

Fascination with Fraser's Fens

The Natural Laboratory Conference threw further light on the fens of Fraser Island with an illuminating paper by University of Queensland's Dr Patrick Moss. He has done a lot of recent work both on Fraser Island and Cooloola to reveal new understanding. That understanding is expected to be considerably expanded in November when FIDO hosts scientists from the International Mire Conservation Group (ICMG) coming from eight countries to assess the further characteristics of the fens. Russell Fairfax who also presented a paper on the fens in 2011 also continues working on them

Understanding the fens

Richard Lindsay's Description: The western side of Fraser Island consists of ancient dunes which are strongly leached, and thus the vegetation tends towards a shorter heath-type community. In places along this west coast, however, and also in places on the adjoining Queensland coast, peat-forming systems have developed. These were first recognized as such by Richard Lindsay (then Chair of IMCG) and David Stroud (UK Ramsar Committee) during a post-Conference tour of Ramsar in 1996 organized by John Sinclair. In 1997 Richard was part of a small group to re-visit a few identified sites in order to begin characterizing the natural heritage significance of the sites.

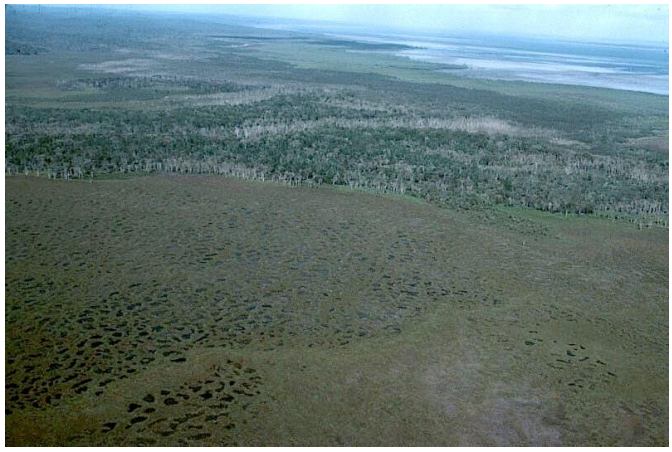
This first reconnaissance visit identified from aerial photographs that there were many examples distributed along the west coast of Fraser Island. The Fraser Island examples appeared to be virtually pristine. The aerial photos also revealed that there were two distinct types of peatland – one forming a classic string-mire pattern and thus almost certainly minerotrophic, whereas the other pattern more closely resembled the pool pattern typical of an ombrotrophic bog. The survey established that the main peat-forming species was Empodisma minus, that the 'bog' pools did indeed resemble bog pools but it was not possible during the visit to establish whether the mire was an ombrotrophic dome or not, and that the string fens consisted of narrow peat ridges 70 cm high, 50 cm across, with lengths of 100 m+, separated by 'flarks' of bare sand with a thin organic deposit. The 'bog pools' were also found to contain minute fish, while the peatlands as a whole were found to be the haunt of the rare ground parrot.

More recent studies: University of Queensland's Dr Patrick Moss and Russell Fairfax formerly of the Queensland Herbarium have renewed research on the Great Sandy Region's patterned fens. Patrick describes them as *"distinctive wetlands that form an elaborate network of pools surrounded by vegetated peat ridges and are the lowest latitude wetland of this type found in the world, with this type of wetland generally associated with high northern latitude regions in Scandinavia and eastern Canada. The patterned fens are a unique community occurring on the World Heritage listed Fraser Island, but are also found in the Cooloola section of the Great Sandy National Park and therefore there is a great deal of interest in their response to future environmental change, particularly linked to climate and anthropogenic factors. In general, the patterned fens are bordered by coastal communities (in the case of Fraser Island) or a river channel (in the case of the Cooloola region) and there is some uncertainty about their formation and antiquity. Data has been derived from pollen and charcoal analysis of sediment cores collected from each of the sites and suggests that patterned fens have two formation periods, during the late Quaternary (35,000 years) and the late Holocene (last 5,000 years)."*

Opportunistic Chance for Research

Workshop: When John Sinclair was in London in 2011 and 2012 he met up again with Dr Richard Lindsay now at the University of East London. He is credited with recognizing Fraser Island fens and their scientific significance back in 1996. Last November Dr Lindsay advised that the ICMG would be heading to Australia in 2013 to study mires Down-under but that Fraser Island wasn't on the itinerary. The itinerary covered areas only peat rich areas in southern states. Sinclair immediately held up FIDO's hand offering to take up to 10 of the scientists to show them the Fraser Island fens free of charge if they flew into Brisbane on their way to Sydney. The invitation was promptly taken up and FIDO will host a workshop for 11 international specialist peat scientists assisted by a grant from Burnett Mary Regional Group from 26th to 29th November.

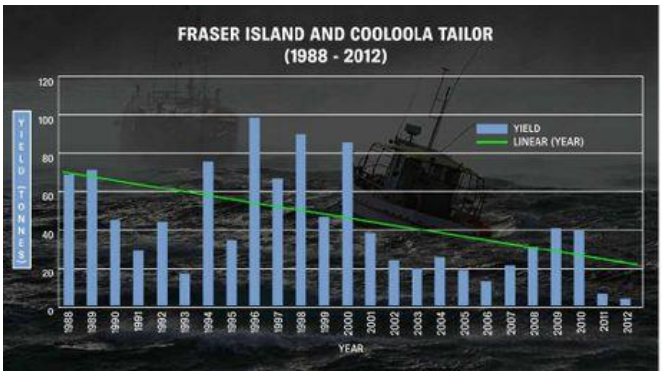
There has been an unexpected bonus that grew from the workshop. Four of the international scientists urged by Richard Lindsay decided to forego the study tour in southern states and remain on Fraser Island for two weeks working with Patrick Moss undertaking a more detailed and intensive study of the fens, particularly the most extensive area of fens at Moon Point. As a result of this research we expect to add enormously to our understanding of the fens. FIDO is happy to extend our support for this group to undertake this research assisted by a grant from the Norman Wettenhall Foundation.



An IMCG team will focus on the Moon Point Fens shown above to get a greater understanding of these special Fraser Island features now known to be 35,000 years old. From the air it is easy to understand why they are described as "patterned fens" as hundreds of small ponds are contained in this peaty environment.

Collaborators: The Fens Study is the result of another interesting collaboration. FIDO has received a grant and logistical support from the BMRG for the Workshop and a grant from the Norman Wettenhall Foundation for the longer study. The study will be assisted by the QPWS providing access to restricted areas and the Kingfisher Group again waiving ferry fares to assist yet another FIDO project.

Fraser Island tailor catches plummet



Tailor (*dhailli* to the Butchulla) were once prolific in the oceanic waters off the Great Sandy Region but in recent years the commercial catch has collapsed. Figures that show Tailor hauls for the Cooloola and Fraser coasts have plummeted from an average 60 tonnes a year between 1988 and 2000 to 23 tonnes a year from 2001 to 2012. In 2011 only six tonnes of the fish were caught commercially from the Noosa River to the north-west tip of Fraser Island reducing to just three tonnes last year. The allowable catch limit of 120 tonnes introduced in 2002 has never been reached and recreational anglers also are recording lower catch rates and say the size of fish is also declining.

Avid angler and fish conservationist Lindsay Dines of Teewah is part of a group of experienced fish guides and anglers from Weipa to the Queensland border who are emerging as an alternative voice to Sunfish, the state's peak recreational fishing body. He wants a ban on commercial beach netting except inside the Noosa River mouth. Mr Dines' group says the government report does not explain the reasoning behind the stock status of individual species. *"The lack of supporting evidence is of concern when it is our opinion that several of the species deemed to be sustainably fished are in decline,"* he said. *"This is particularly the case with grey mackerel and tailor. The strong evidence of collapsed commercial and recreational catches of tailor in the Cooloola and Fraser Island region and the insistence by Fisheries Queensland that tailor are being sustainably fished, is an anomaly that requires explanation."*

Mr Dines said management of commercial tailor harvesting had failed to slow the decline in their number.

He argued that the continued harvesting of species classified as uncertain or undefined would seem to be a high risk.

Rainbow Shores didn't measure up

In June the Planning & Environment Court finally rejected an appeal for a major development application at Rainbow Beach, Stage 2 of Rainbow Shores. FIDO had been very concerned about the development that had proposed to establish 700 housing lots, 3,230 units, 7,000m2 commercial area and a population of 6,550 people in a narrow ribbon development between the Inskip Point Road and the ocean beach. FIDO had been a party to the objection and our objections were dealt with early in the process but the whole process of rejecting this development has been dragged out over 7 years. The appeal which related to a refusal in 2009 of a 2006 development application, associated with a 1984 development lease was one of the longest in recent times, with hearings commencing in December 2011.

The controversial development proposal was even considered at the state political level before an application got to the Gympie Council that ultimately rejected it on planning grounds. The Department of Environment & Natural Resources led evidence against the development principally on the basis of flora, fauna and geomorphology. The community led evidence on the basis of planning and need. The Gympie Regional Council led no planning or environmental evidence whatsoever.

The judgement found that:

- The proposal would unjustifiably adversely impact on the flora, fauna and biodiversity values;
- The development would consequently conflict with the provisions of various planning documents, including the superseded, existing and draft planning schemes; and
- The proposal wasn't supported by sufficient economic, community or planning need.

The planning schemes were prepared in recognition of the environmental sensitivity of the Inskip Peninsula and to protect Rainbow Beach as the principal centre serving this part of the Cooloola Coast. This judgment reinforces the outcomes sought by those schemes and will assist in protecting the Inskip Peninsula into the future.

While this Fraser Island Creeper *(Tecomanthe hillii)* isn't endemic to Fraser Island, it can be found growing in its rainforest creeks and around Kingfisher Resort

Killer Whales hit the Headlines

Great Sandy Strait made national headlines in July when a pod of seven Orcas or killer whales became stranded on the shallow sandbanks near Bookar Island (adjacent to Ungowa). Two of the pod believed to be a mother and calf died. Four adults about six to seven metres long and a juvenile about four metres long were successfully rescued.

It is not unusual for predators such as killer whales and great white sharks to appear along the Queensland coast. They are known to attack migrating humpback whales. They attack any old or ill animals and particularly calves heading south to Antarctica with their mothers. With more humpbacks migrating each year, it is logical that big predators would follow. While Killer whales are often sighted around northern Fraser Island as whales leave Hervey Bay, this is the first time that a large pod has been reported swimming through Great Sandy Strait. Two days after the stranding rangers found another decomposed Killer whale carcass in a creek north of Kingfisher Resort. The remaining nine (9) killer whales were reluctant to leave the area but eventually moved into Hervey Bay.

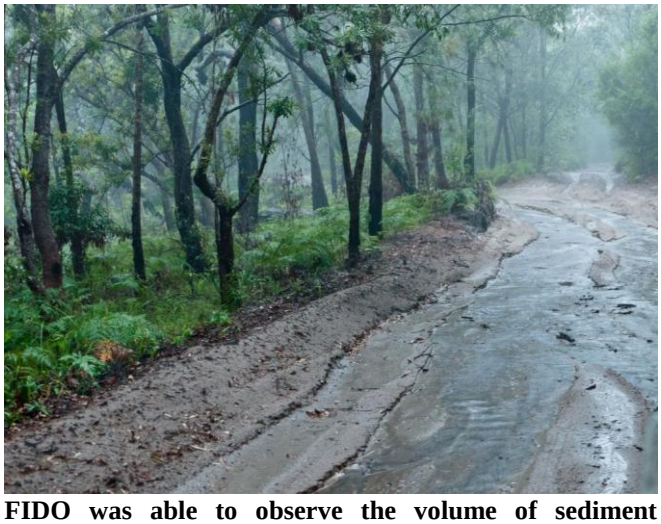
The Importance of Monitoring

For almost two decades there has been obvious evidence of sediment flowing off the roads and creating alluvial plumes in places on Fraser Island. This has been increasing concern to FIDO. In 2012 we were given permission to install monitoring devices to assess the extent of sediment deposition. The early results of monitoring have already raised some concerns about some impacts on Fraser Island's natural integrity. 75mm of sediment has accumulated around the base of one monitoring station in Lake McKenzie.

In August 2012, FIDO received a Coastal Communities' grant from BMRG that enabled it to incorporate monitoring into its established bush regeneration program based on Eurong.

On 28 November 2012 FIDO volunteers installed a number of monitoring posts near Lake McKenzie (Boorangoora). Four were to monitor the impact of recreation on the lake beach and lunette vegetation simply by photographing sections of the beach from precisely the same spot and at the same angle over an extended period of time. Another two were to monitor the volume of sediment accumulating in the swale behind the lunette that has been a longstanding concern of FIDO.

A third monitoring pole, named *Gunda*, was also installed on the North eastern corner of the lake to assess the sediment flowing from the adjacent west bound one-way road to the lake. Gunda is near the site of the old Forestry hut and where WWII Z Force commandos trained. It is also the site where all tourists saw Lake McKenzie until the 1970 bus tragedy. FIDO has long been concerned that sediment was flowing from the road into the lake but we had no idea of the volume or the extent. The monitoring pole was to develop a crude measure of the accumulation of the sediment as a first step to quantifying the significance of the problem.



FIDO was able to observe the volume of sediment flowing down a sand track on Fraser Island on 4th March 2012 when roads became rivers carrying huge quantities of sand. 138 mm of rain was recorded for the day. The lakes rose by about the same amount. Central Station to Eurong Road was a moving river of slush. Photo: Keith Cordwell

Water repellence: A common assumption is that sand is like a sponge and will absorb every drop of rain that falls on it. That ignores that sand develops water repellence until it finally gets wet. Water repellence will cause water to roll off the surface of the sand carrying surface sand with it. On the roads another factor means that even when the water repellence breaks down, a hard subsurface layer makes it very difficult for rain to penetrate to any depth and thus roads with any slope are prone to becoming drains. Thus the alluvial plumes usually form at the bottom of roads with a slope or where the water runs off the road at some point.

There is a nexus between heavy rainfall events (days when more than 12.5 mm [50 points] rainfall are registered) and run-off from the roads moving appreciable amounts of sediment. The posts have rulers attached to help determine that nexus

Rainfall Events: After seven months of quite dry weather, on 25 January, the mini-drought was broken by ex-cyclone Oswald that was followed by a series of deluges. In the 192 days between 15 July and 25 January when the heavy rainfall events resumed only 178.2 mm rain was measured at Eurong. 92.2 mm fell in just five days that recorded more than 12.5 mm. Then 405mm resulting from ex-cyclone Oswald fell in just four days at the end of January and another 305 fell during 8 days of February. Another two days of heavier rain in the first half of March when the first data was gathered yielded 61 mm. In summary there had been fourteen (14 days that caused major runoff before the impact of that runoff was measured at the site of the datum posts.

The data from *Gunda*: That brings us to the measurements of sediment at *Gunda*. When *Gunda* was installed in late November, because the lake was still very full from the three previous wet years, it was located in the path of the sediment flow about two metres back from the edge of the water. FIDO could never have anticipated that the lake would rise by almost another metre over the next three months even submerging the monitoring ruler strapped to the post to measure the accumulation of sediment.

There isn't a large catchment above *Gunda*. The 100 metre of road up a hill is all palletted. There are bund walls to retain any sediment at the bottom of the hill. There was no obvious evidence of sediment overflowing the bund yet 75 mm sediment built up in that period. Only one other monitoring site registered more sediment build up and that was the *Cooloola* post, the nearest one to Eurong. The volume of the sediment deposited is the equivalent of dumping many truckloads of sand into Lake McKenzie. While it may take a few hundred years at this rate to fill the lake, it is not preserving the natural integrity of Fraser Island if this is allowed to continue.

The solution to an intractable problem

The most obvious solution is to close and stop any more water running down the road to the lake. This requires rerouting the road further away from Lake McKenzie (Boorangoora) or closing the road.

Further details of FIDO's ongoing monitoring can be seen at www.fido.org.au FIDO will be updating the data following the next season of summer rains. However the accumulation of sediment in Lake McKenzie (Boorangoora) can't be allowed to continue.

Alarm Bells on Coastal Erosion

For some time, FIDO has been concerned at one of the four big impacts of climate change on Fraser Island — coastal erosion*. FIDO has pointed to the vulnerability of the low lying area to sea-level rises particularly in the Wathumba, Moon Point and North Spit areas even if only the most conservative predictions of sea level rises occur. The latest CSIRO research has us now considering other factors such as the strength of wind and waves:

A recent study from five research groups from Australia, the United States, Japan, Europe (Germany, Sweden, Portugal) and Canada compared results. Each group used different modelling approaches to develop future wave-climate scenarios to understand potential impacts on coasts from climate change driven wind-wave conditions.

Lead author, CSIRO researcher Dr Mark Hemer, said that 20 per cent of the world's coastlines are sandy beaches which are prone to natural or man-made changes. Around 50 per cent of Australia's coast is sand. It is estimated that 10 per cent of sandy coasts are becoming wider as they build seawards, 70 per cent are eroding and the remaining 20 per cent are stable.

Dr Hemer stated that if we wish to understand how our coasts might respond to future changes in climate then we need to try to understand how waves might respond to the projected changes in global atmospheric circulation seen as shifts in storm frequency, storm intensity and storm tracks. He explained that coastal impacts of climate change studies have predominantly focused on the influence of sea-level rise and, until now, not focused on how changing wave conditions will impact the coastal zone in a changing climate.

He said sea-level rise is likely to have considerable influence along much of the world's coastlines. However, with such poor understanding of how changes in waves and other coastal processes will also influence shoreline position, it is difficult to attribute a level of future risk to the coast under a warmer climate.

* FIDO's other major concerns about predicted climate change remain:

(a) the loss of many forest species that are already at the limit of their range including blackbutt, tallowwood, scribbly gums, satinays and brush box and the ecological implications of that;

(b) the impact of new more tropical species of flora and fauna (eg crocodiles and jellyfish) on the ecology;

(c) the impact of changed weather patterns on the fire regime and on other ecological processes such as sand-blows that have been predicted to be completely overtaken by vegetation by the end of the 21st Century.

Phaius Orchids

Laura Simmonds Project *(continued from p 3)* From September to October, the tall, large flowering stalks of the two species of Phaius orchids are obvious above low-lying swamp areas across the island. However, both of these species are at risk of extinction, with fewer than 1500 believed to occur in the wild causing them to be listed as endangered by the federal and state plant protection acts. Increased temperatures, rainfall changes and sea level rises that are predicted for the future, add additional threats to survival of this iconic species.

The second aim of the research is to re-assess populations across the species' climatic range and create population growth models. The Fraser Island populations will contribute to the mid-range models. These models will be used to test if populations are growing or declining across the climatic range as predicted by theory. When linked with climate change predictions for regions, the results of the ecological genetics surveys, will give a holistic understanding of the future vitality of the wild populations.

The major outcome will be provision of conservation management actions required to assist the species survival into the future and recommendations to best guide restoration or augmentation efforts under changed climatic conditions. Orchids are sensitive species within the landscape. An additional outcome may be an example of how an iconic and recognizable species such as *Phaius australis*, could be used to monitor the changes of entire ecosystems in response to climate change.

FIDO is drawing on this well stocked nursery at Kingfisher Resort that grows Phaius orchids, Angiopteris and Tecomanthe to help improve the landscaping at its sister Eurong Resort

The Political Scene

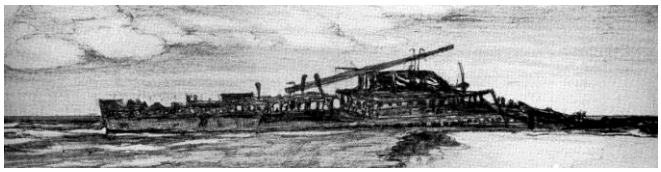
It is depressing to observe the accelerating environmental degradation as a result of governments deliberately downgrading the environment in a relentless pursuit of economic growth as if the economy can keep growing endlessly. Withdrawing funds from groups such as FIDO and the Environmental Defenders Office are minor compared with the degradation caused by turning five national parks into cow paddocks by constructing fences at a cost of $500,000 to the taxpayers for the benefit of a very small group of people. Then there is the issue of the payback to the Stradbroke Island sandminers for so generously funding Campbell Newman's election in his seat of Ashgrove. Once expired mining leases are now being extended by almost a quarter of a century. We know government thinking about protecting the Great Barrier Reef. Protection is subservient to industrial and port development irrespective of the potential impacts on the Reef. Of course World Heritage counts for so little that the idea of progressing the World Heritage nomination for Cooloola has fallen entirely from the agenda. Withdrawal of wild rivers declarations, and allowing more CSG in the Channel Country are just some of the environmental measures that are killing our once great natural heritage.

Pumice on Fraser's Beach

A floating raft of pumice created by an underwater volcanic eruption near New Zealand, has left some calling cards on Fraser Island's beaches. It is believed that the pumice was the result of an eruption by the Havre Seamount in July 2012 in the Kermadac Islands, north of New Zealand. The underwater volcano spewed out a large amount of pumice, creating a raft estimated to be more than 20,000 square kilometres in size. The raft washed up in south-east Queensland and northern New South Wales this year before making its way to Heron Island in April.

Rafts of pumice, porous volcanic rock are a remarkable, but poorly understood, natural phenomena. This floating island of pumice is thought to have travelled more than 4000 kilometres across the Tasman and the Coral Seas.

There have been other periods when Fraser Island beaches have been strewn with pumice and the huge quantities of pumice noted on the Fraser Island beach at first was assumed to be some of previously deposited pumice exhumed by the very significant erosion of the beach and foredune that has occurred over the last year.



Cinderella Fraser misses out again

The 2013 Caring for Country Grants have been recently announced. Once again Fraser Island has been dramatically duded with no money for any project other than funding to keep the World Heritage Advisory Committees operational has been approved. If all other World Heritage areas didn't receive similar funding it is doubtful if even this would have come to Fraser Island. FIDO has continually pointed out the discrepancies in how Fraser Island has missed out on Caring for Country and NHT Funding over the years. Yet again no on-the-ground project put forward to help improve management of Fraser Island has been funded despite strong consensus support for every project put forward.

FIDO's Fair Go petition: In 2008 FIDO initiated a petition to the Federal Government seeking a more equitable share of funding. We noted then that:

- Federal funding for World Heritage Areas fell from over $2 million per area to less than $1 million in just 7 years.
- Fraser Island gets far less Federal funding per visitor than either Kakadu or Uluru, yet all are world renowned and highly visited World Heritage Areas.
- Over the first 9 years of the Howard Government, Fraser Island received only 4.26% of the World Heritage money that was divided up amongst the 9 state managed World Heritage Areas. The Tasmanian Wilderness received 52% and Queensland's Wet Tropics received 31.3%.

The situation has only got worse in the five years since.

Our petition and pleas fell on deaf ears. We can't understand just why applications to the Commonwealth for Fraser Island projects seems to almost deliberately miss out. Fraser Island will continue to be a Cinderella in Australia's World Heritage lineup as long as we get not even part of our share of federal funding to carry out urgently needed projects.

The Indian Head Dilemma

FIDO has been frustrated for years while the disgusting environmental degradation of Indian Head has been allowed to continue due to the uncontrolled access to the site that has seen this dramatic headland eroded away and become a haven for weeds. The cash-strapped QPWS has finally garnered enough resources to start consider how to address a major problem. Although the SVC committee worked out a preferred outcome in 2008 AECom has been commissioned to deliver a plan for the headland.

A major sticking point is the fact that Indian Head was the site of a major massacre between Christmas and New Years Day in 1851 and although the Butchulla previously accessed the site some opinion favours closing the site to all visitation as a sign of respect and a reminder of a tragic episode in the history of Fraser Island. Given that more than 100,000 people annually ascend this prominent landmark that poses a difficult challenge. So while wrestling with the difficult decisions, Indian Head remains shamefully neglected with its wafer of topsoil being scoured away.

FIDO supports recognition of the massacre but isn't convinced that a total ban on walking up at least part of the headland is the best solution to getting a wider public understanding of the savage treatment of the Butchulla by the frontiersmen from Maryborough in 1851. FIDO is also most anxious to arrest and repair the environmental degradation. However all will be futile unless both the State and Federal Governments are prepared to put adequate resources to the solution now being actively sought. Furthermore the situation has some urgency and can't continue with no decision as it has done for far too long already.

Regardless of the decision to allow access to continue or to close Indian Head off the damage already done needs to be repaired and this will take resources.

Members of the Joint Advisory Committees discussing the Indian Head situation on 7th September during an on-site inspection.

Visitor Numbers: Considering how frequently visitor numbers to Fraser Island are thrown about it remains a major frustration of FIDO that the Queensland Government seems to be unable and incapable of releasing accurate Visitor numbers for Fraser Island where every vehicle is required to have a permit and there is a per capita fee for visitors on commercial tours.