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OBJECT: To foster an interest in nature

MEETING THURSDAY June 3 2010
7:30 pm Australian National University

www.fieldnatscanberra.com **Meeting details back page**

The Galápagos Islands: lava lizards and tortoise races

Frank Ingwersen

Frank was for a long time an ecologist with the ACT Parks and Conservation Service. He has undertaken many vegetation surveys in the Canberra region, including vegetation of the Ainslie— Majura reserve, as well as Jervis Bay, and has carried out studies of various fauna species, including the striped legless lizard, and the morabine grasshopper. ,

Frank last spoke to the club in March 2009 on a background to ACT vegetation. This time he will be talking about a location far removed from Canberra. Some background to his topic is provided on page 2

***Darwin's Cotton flower* (Gossypium barbardense var. *darwinii*),**

***Small Ground Finch* (*Geospiza fuliginosa*)**

EDITORIAL

Regrettably our president has not been well over the last month and a lot of material that would normally be published in this *Field Natter* has been held over. Also this month's field excursion will be discussed at the meeting and if required information on any possible outing will be circulated. I also welcome back for next month our current editor Margaret Kalms

. *Chris Bunn*

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FIELD NATURALISTS' ASSOCIATION OF CANBERRA INC. GPO BOX 249 CANBERRA ACT 2601

FIELD NATTER

The Galápagos Islands and Mr Darwin
—— an introduction ——
by Frank Ingwersen

Beaches and lava, thin misty drizzle on rising ground, pointed volcanic cones, gently sloping uplands, jagged black boulder shores and reefs, white and black sands from coral and basalt, lizards asleep on dark rough rocks, sea birds and turtles, birds that know no fear of humans.

All these are present in the Galápagos Islands. They have all be written about and filmed, explored and researched. With the long history of commentary on these remarkable islands where the surface of the earth is actively under construction, further description seems impossible.

Long shadows of certain observers render any attempt the more daunting. Of these, that alone of the naturalist to the Beagle expedition of 1835, the young Mr Charles Darwin, leaves one hesitant to commence yet again on some personal recollection or an explanation of anything only briefly seen. And yet, that is what the young Mr Darwin did. While he was to become famous in his much later years, he had not acquired the great depth of understanding and knowledge of detail that later would enabled him to publish, even reluctantly, his major work on how the variety of species observed by us may have arisen.

He began with recording what could be seen and at that stage, he was testing only the broadest of ideas about how species might change over time. The ideas were not originally his but through his observations, he would later be able to develop them into a strong theory.

He certainly made interpretations and commented on such things as the variety within such a small area and the observable relationships between some species' capacities and behaviours and particular geographic areas of the Galápagos Islands. He commented on the tameness of wild birds and the closeness of relationships between the habitats or food resources associated with the varieties of tortoises and birds. He was an acute observer at first and later, in collaboration with other naturalists, he was a careful and masterful interpreter of his data, the collected evidence of what we now usually call *biodiversity*. He correctly deduced the relationship between habitat, place and diversity although he had no knowledge of the mechanics of genetic variation.

He postulated a process of natural selection that caused distinct forms to arise most probably as derivative stock, the selected descendants of their progenitors, what we now call ancestral stock. He only partially understood why and he only partially understood the real power that the natural laboratory of the Galápagos Islands has, to both demonstrate his theories and to support those of later workers in the field now known as population genetics. In fact, he was basically correct for only some of the possible, eventually discoverable reasons. Genetics and the improved classification of plants and animals would later show this. His insight and carefulness in formulating ideas was exemplary. His reluctance to publish his

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SOME DATES TO REMEMBER
National Parks Association photo exhibition. (7 – 26 June)
Photography by members of the NPA from various national parks

Next committee meeting the Conservation Council Offices. The next meeting will be in the Conservation Council Offices on **Wednesday 21 July at 7:30 pm**

Flying Cane Toad – *noun* a myna (alluding to the destructive habits of this introduced bird).

The *myna* (or *mynah* or *Indian myna*) is the bird *Acridotheres tristis*, of South-East Asia, that has become naturalised in Australia. The name is sometimes confused with *miner*, used of a number of native Australian honeyeaters. The Asian bird's name comes from a Hindi word that goes back to a Sanskrit word *madana* meaning 'love', referring to the affectionate behaviour of pairs of the birds. Australians' attitudes towards this bird, however, have become anything but affectionate, and mynas are generally regarded as pests, especially because they drive native birds out of their nesting spots. They are the bogans of the ornithological world.

In 1998 the *Daily Telegraph* (Sydney) reported:

> A survey involving up to 20,000 volunteers from around Australia will determine if that cheeky, feathered interloper—the common mynah bird—has come to rival the cane toad as a national pest. The mynah bird's habit of snatching territory and nesting sites from native birds and small mammals in the eastern States has won it the unflattering nicknames of **'flying cane toad'** and 'garbage bird'.

In 2009 the *Chronicle* from Toowoomba showed that the term is widespread:

> These birds are highly intelligent, extremely territorial, and have the dubious distinction of being named one of the world's top 100 invasive species and the Most Hated Pest in Australia. They are known as the **flying cane toad**, and in surveys are more loathed than foxes and feral cats.

Attempts to eliminate the myna began in 2000, as reported in the *Canberra Times*:

> Australian Capital Territory Urban Services Minister Brendan Smyth has launched a war against the **'flying cane toad'**, the myna bird. Smyth announced on 15 May 2000 that the Australian National University Forestry Department would receive a $A12,000 grant to assist with a new invention designed to painlessly kill whole flocks of the troublesome bird at a time by luring them into a synthetic tree, which is then covered and pumped full of a lethal gas.

In some parts of Australia the term **flying cane toad** has been occasionally applied to the starling or the sparrow, but it is now almost exclusively applied to the myna.

Pests like the cane toad are never eradicated, but at least this one has added something to the Australian word stock.

From the Oxford University Press suggested by Maureen Bell

(Continued from page 2)

fully formed views until late in life was perhaps a mark of both his thoroughness and his realisation that with the strength of his observations, his theory would potentially revolutionise the way in which the world was understood to function, indeed, how it could have even become to be as it is.

And so on the first day, with all of this in mind, I walked up a rugged scoria boulder path to a low hill to take in the landscape of San Cristóbal (Chatham Is., named after William Pitt, First Earl of Chatham, in Charles Darwin's time) and watched Frigatebirds swooping and circling and roosting in the roughest dry scrub imaginable for an equatorial latitude. Here, age matters. The islands are a sequence of volcanic land surfaces formed as the outer crust of the Earth passes over a hot spot deeper in the mantle due to continuing movement of the large plates of the crust in the Pacific Ocean that form the ocean floor. San Cristóbal is formed from the coalescence of two major volcanic flows. The island is considered to have originated volcanically 2.4 my ago and ceased developing only 650 000 years ago.

Frank Ingwersen

One small change one big effect — Fire ants

The fire ant *Solenopsis invicta* is a native of southern Brazil and northern Argentina. This small ant (4-6mm) was introduced into Alabama USA in the 1930s, probably in stowaway colonies in seaborne cargo. By the 1970s it occupied most of the southern states. During the 1990s it reached the West Indies, Hong Kong and mainland China.

Fire ants were unknowingly imported into Brisbane, possibly up 20 years ago. The pathway of entry into Brisbane is unknown, but was possibly in a shipping container from the US or South America. There have evidently been three different incursions of fire ants into Australia: two into Brisbane and one to central Queensland, near Gladstone.

The early ant populations in the U.S. were monogyne or oliogyne, that is containing either one or a small number of closely related functioning queens. Their colonies were clearly demarcated by territorial behaviour that kept colonies apart. Sometime in the 1970s a profound change, by the change of one gene, occurred. Some fire ant colonies were replaced by polygyne colonies, a many queen population that defend no territorial boundaries. With territorial boundaries local populations now coalesce into a single sheet of well-matched ants spread across the landscape. Colonies are no longer established by virgin queens that mate and disperse far from the original nest. Instead new extensions of the supercolony are created by 'fissioning', the emigration from the mother colony of inseminated queens accompanied by part of the work force. A queen is capable of laying up to 800 eggs a day, numbers build up quickly, and a year-old colony can often have over 100,000 workers. Queens can live for over seven years and are capable of producing over two million eggs in their lifetime.

Fire ants are small but vary in size from 2-6mm. These ants have been photographed on a dollar coin

Mature fire ant colonies can contain 200,000 to 400,000 workers.

Fire ants have a sting in their tail, similar to wasps and bees. However, unlike bees, fire ants can sting repeatedly. Stings from fire ants can cause a painful, burning and itching sensation, which can last for an hour. Multiple stings give the sensation that the body is on fire; hence, the name fire ant.

Preliminary climate model analysis by the CSIRO has shown that fire ants have the potential to inhabit most of the major coastal areas of Australia, and extensive areas of the tropical north, avoiding only colder and drier areas. Vast regions of the continent's natural environment, including world heritage areas

Fire ants are very aggressive and are voracious feeders on small ground fauna, including insects, spiders, lizards, frogs, birds and mammals. Consequently, fire ants may displace or eliminate some of Australia's unique native ground fauna. This was observed in some fire ant infested bushland in Brisbane's southwest in the early stages of the eradication program.

Fire ants also have the potential to seriously impact the vegetation communities in natural areas. Their habit of eating or damaging seeds may alter the ratios of the various seeds available to develop, which can cause major changes in an ecosystem over time. Fire ants also predate or disturb the insects and animals that pollinate native plants, which may also result in long-term change to the vegetation of our bushland areas.

Costs and Benefits of Testosterone in Birds

Individual male birds can differ dramatically in their behaviour, and this difference is often due in part to how much testosterone they produce. In many species, some males produce high testosterone and are more aggressive, while others produce lower levels and are more parental.

Testosterone and the behaviours it causes may predict how well a male succeeds. For example, an aggressive male may be more likely to obtain high-quality territories that attract females. At the same time, aggression might pose a survival risk, because aggressive males might be more likely to engage in costly fights. These considerations suggest that hormones like testosterone might be under strong natural selection in the wild.

To test this idea, a team of researchers from Indiana University studied a common songbird, the dark-eyed junco in the Appalachian Mountains of Virginia. They tested how much testosterone a male could produce by using an injection of a brain hormone that causes the bird to increase its testosterone levels temporarily, mimicking what happens naturally when fighting other males. The researchers followed the birds, measuring their survival and success at reproduction, both in their own nest and those of their neighbours.

They found strong relationships between testosterone and both reproduction and survival, demonstrating that natural selection is currently acting on testosterone production in this population of juncos. The exact pattern of selection they found was surprising, however, the males that did the best at both survival and reproduction had testosterone production very close to average. It was bad to produce either really high or really low levels of testosterone. High-testosterone males did have one universal advantage (as long as they survived) —they were more likely to be the genetic father of the offspring raised in their nests.

Adapted from the current edition of the American naturalist

ParkCare

ParkCare is a partnership between the ACT Government and community volunteer groups who have an interest in the natural environment. Volunteers actively contribute to protecting natural and cultural sites in local parks and nature reserves throughout the ACT, Namadgi National Park and Googong Foreshores.

ParkCare volunteers undertake a variety of activities including seed collection, plant propagation, tree planting, weed removal, erosion control, vegetation mapping and recording, water quality monitoring, raising community awareness and the maintenance and restoration of heritage places. Anyone can become a ParkCarer, all that is needed is enthusiasm! Previous experience or special skills are not needed, just an interest in making a difference. Training, equipment and support are provided.

How to Get Involved

If you'd like to participate in ParkCare activities, please complete the Registration Form below and send to the Community Programs Officer in Parks, Conservation and Lands:
Post: GPO Box 158 Canberra, ACT 2601
Email: communityprograms@act.gov.au
Fax: (02) 6207 2544
Phone: (02) 6207 2145
Website: http://www.tams.act.gov.au/play/pcl/get_out_there/volunteering/parkcare

Field Naturalists' Association of Canberra Inc. **GPO Box 249 CANBERRA ACT 2601**

Who are the Field Naturalists?

The Field Naturalists' Association of Canberra (**FNAC**) was formed in 1981. Our aim is to foster interest in natural history by means of meetings and regular field outings. Meetings are usually held on the first Thursday of each month. Outings range from weekend rambles to long weekends away. Activities are advertised in our monthly newsletter. We emphasise informality and the enjoyment of nature. New members are always welcome. If you wish to join FNAC, please fill in the member application below and send it in with your subscription to the FNAC Treasurer at the address below:

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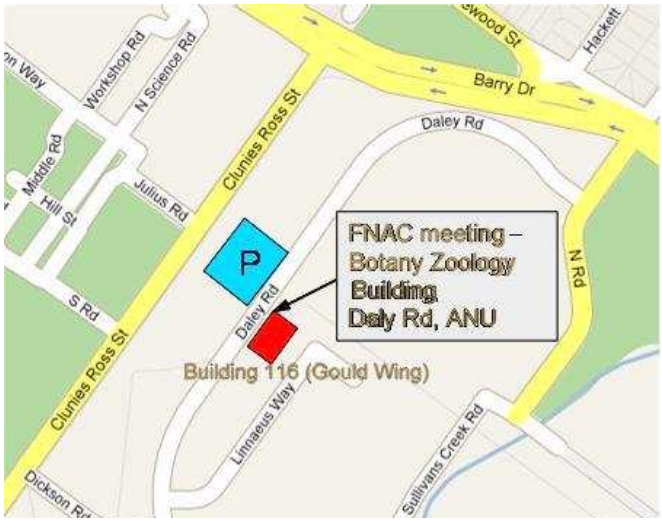

Monthly meeting venue: Division of Botany and Zoology, Building 116, Daley Rd, Australian National University. Park (occasionally the adjacent building 44). Meetings start at 7:30 pm and are followed by refreshments.

MEMBERSHIP APPLICATION OR RENEWAL

Family name: …… First name: ……..
If a family membership, please include the first names of other members of the family:

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Subscription enclosed: $……(Single/Family $25) Donation: $.....

How did you hear about FNAC? Please circle: FRIEND? OTHER? Please specify: