Cindy's Beetles Beat the Flies

Securing Our Region

Imogen Jones, Joely Scott, Sarah Brennan,
Tara Scholz, Preston Coe and Charlie Doig

Henty Public School

Creative Catchment Kids

Creative Catchment Kids is an initiative of Wirraminna Environmental Education Centre. It aims to improve engagement between our funding partners and school students by providing opportunities for positive and authentic ventures that encourage students to develop creative solutions to agriculture and natural resource management issues.

www.wirraminna.org/creative-catchment-kids/

Wirraminna Environmental Education Centre

The Wirraminna Environmental Education Centre is located in Burrumbuttock, north of Albury in southern NSW. Since 1995, the centre, which is adjacent to Burrumbuttock Public School, has provided opportunities for discovery and learning about the natural environment, the ecology of the local woodlands and the beauty of native plants.

www.wirraminna.org

Enviro-Stories

Enviro-Stories is an innovative literacy education program that inspires learning about natural resource and catchment management issues. Developed by PeeKdesigns, this program provides students with an opportunity to publish their own stories that have been written for other kids to support learning about their local area.

www.envirostories.com.au

Cindy's Beetles Beat the Flies

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School: Henty Public School

Local Land Heroes - Securing Our Region

In 2015, students involved in the Creative Catchment Kids program researched and wrote stories about their 'Local Land Heroes' who are involved in pest management in the Murray and Murrumbidgee regions. These heroes are local individuals, couples, a business or industries that have made a difference in their local community by contributing to the management of pest animals and plants. The program was generously funded by Murray Local Land Services and Riverina Local Land Services.

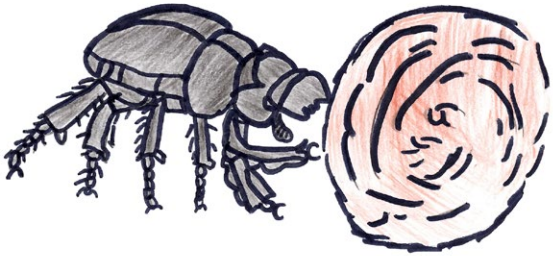
Local Land Heroes is part of Enviro-Stories, a PeeKdesigns education program.

The Scott Family

Cindy and Steven Scott and their three children, Casey, Joely and Sam, live on a farm called Munyabla. Munyabla is located roughly fifteen minutes west of Henty, NSW, Australia. The farm has been in the Scott family for six generations. Cindy was born in Cape Town, South Africa, and spent a lot of her childhood in the African bush.

The Scotts have an Angus cattle stud and also crop canola, wheat and phalaris. When Cindy moved to Australia, she was so annoyed by the number of flies she even considered moving back home. Knowing that flies breed in dung, it triggered them to introduce dung beetles onto their property as a pest control measure.

What is a Dung Beetle?



A dung beetle is a beetle that buries dung in the ground, and feeds partly or exclusively on dung or faeces. Dung beetles live in many different habitats including deserts, farmlands, forests and grasslands. Different species are active at different times of the year.

Many dung beetles, known as rollers, roll dung into round brood balls in which the females lay their eggs. The brood balls are then used as food by the larvae. Dung beetles can grow to three centimetres long and two centimetres wide.

Dung Beetles and Pest Management

Dung beetles are beetles that bury dung underground in tunnels that they dig. The dung is removed down these holes in the ground which means the flies cannot breed in the dung. The holes also allow water to easily infiltrate the ground.

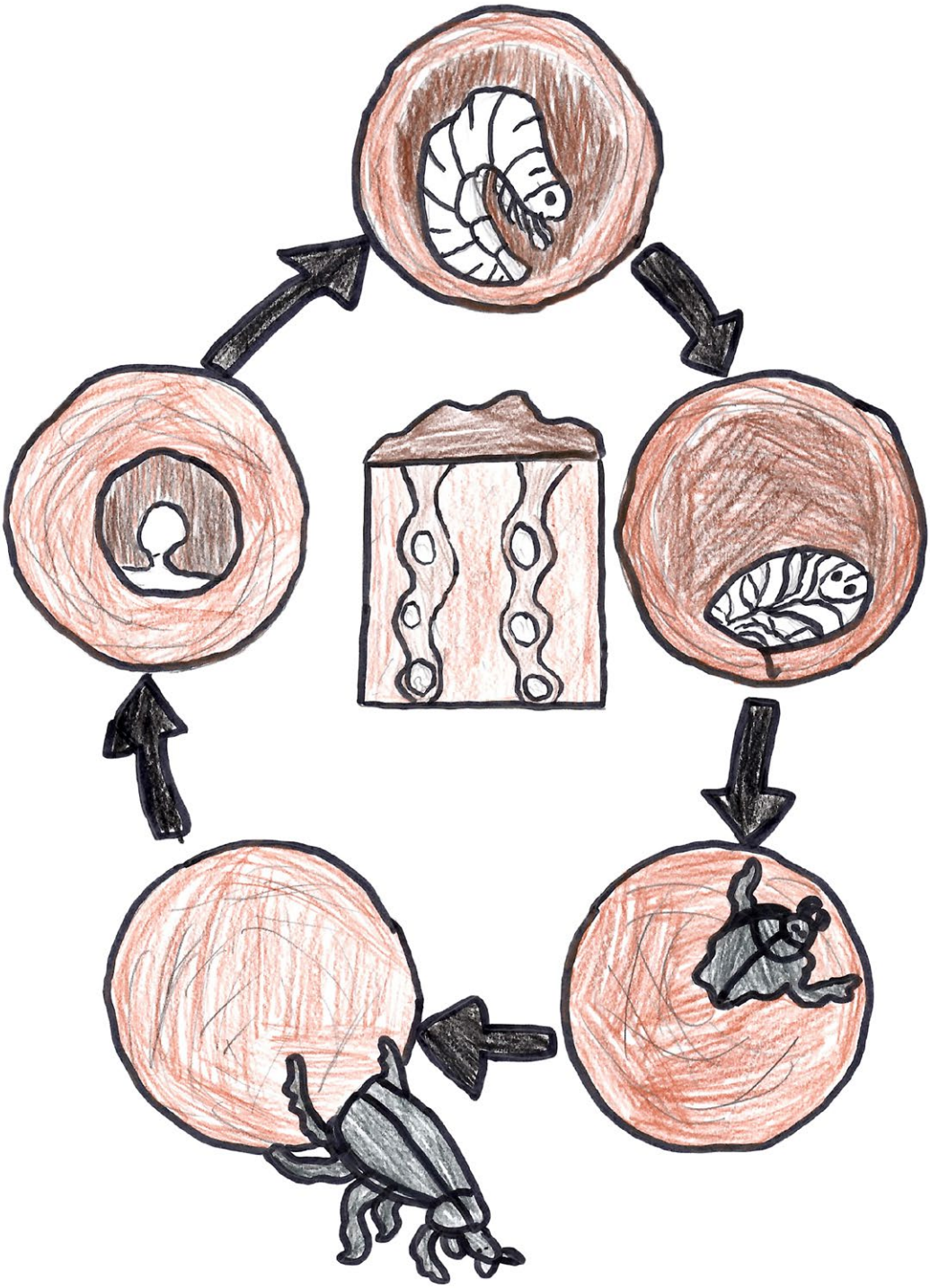
The beetles roll the dung up into balls and roll them into the holes. Their digging brings the underground soil to the top, while adding more nutrients to the paddock soil by taking nitrogen and phosphorous underground.

Life Cycle of a Dung Beetle

A pair of dung beetles (a male and a female) may work together digging a nest to create a burrow beneath the dung pat. The dung is taken into brood chambers within the burrow.

The female lays her eggs into the brood balls in the burrow. The eggs hatch into larvae (pictured below), which then feed on the dung surrounding it.

The pupae turn into adult dung beetles, which break out of the dung ball and dig their way to the surface. The newly formed adults will fly to a new dung pat and the whole process starts over.



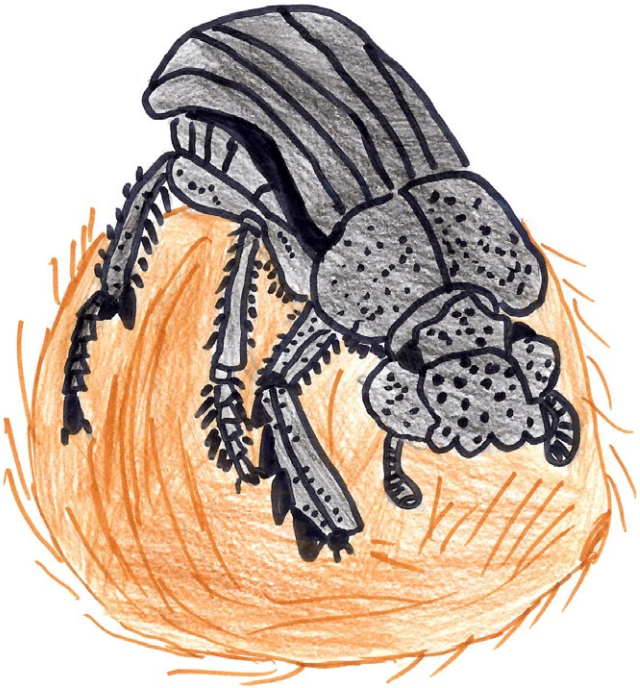
The Scotts' Dung Beetle Venture

When did they start?

The Scott family introduced dung beetles onto their farm in 2009. They first released 8000-9000 dung beetles. They came in a packaging box in the mail and there were about three boxes of them.

Why did they start?

The Scotts started the dung beetle program because when Cindy moved to Australia every time she went to go for a walk (on their farm) her hands were going in all different directions to shoo the flies. She was used to South Africa, where there are fewer flies because there are over 2000 species of dung beetles there that remove the dung, which means that the flies can't breed and therefore the fly population is kept under control.



How did they release the beetles?

To release the dung beetles, the Scotts went to the centre of their farm and placed the beetles onto the middle of the cow pats. By doing this, it has allowed the beetles to spread and breed throughout their farm and onto neighbouring farms.

Future plans

The Scotts are hoping that in the coming years they will be able to introduce different types of dung beetle species. They would like to introduce species that work in all the different seasons. At the moment they have four introduced species of dung beetles including *Onthophagus taurus* and *Bubas bison*.

The Benefits of Dung Beetles

Pest management of flies

Dung beetles have reduced the fly population by up to 90% on the Scotts Angus cattle stud. Flies on farms can cause many problems like flystrike on sheep, which is when maggots hatch inside an open wound. Maggots inside of an open wound on an animal can become infected. As you can see these are very serious matters.

Source: WA Today

Pasture fertiliser

Dung beetles take the manure underground which aids in the fertilisation of the Scotts' crops and pastures, which in turn assists in feeding the cattle. By removing the decomposing organic matter (the dung) from the soil surface, the dung beetles help store carbon in the soil underground. Dung beetles also provide habitat and food for earthworms. Another benefit of dung beetles is that the tunnels they create help aerate the ground so it absorbs more rain, helping the land become more productive.

Some species of dung beetles that are in Australia have been introduced from other parts of the world including Africa. In Australia, there are many species of native dung beetle.

Australia's native dung beetles: The native dung beetle processes smaller amounts of manure from native animals such as kangaroos, koalas, wombats and echidnas. The native dung beetle can also process sheep manure. This is because sheep manure is smaller and drier than that of other animals, such as the cow.

Introduced dung beetles: The introduced species can process manure from animals such as cattle because, in Africa, the dung beetles have evolved to be much larger due to the large amounts of manure from animals such as elephants and rhinoceros.

Interesting Facts

- 12 pats are produced by an adult cow each day.
- 24 million hectares of Australian pasture is rendered unproductive by dung.
- 3000 flies can hatch on a dung pat in a fortnight.
- A female dung beetle eats up to one kilogram of poo in her life.
- Dung beetles can create tunnels in cow pats that are 30-50 centimetres deep.
- The fox is a predator of the dung beetle.

Imogen Jones, Joely Scott, Sarah Brennan, Tara Scholz, Preston Coe and Charlie Doig with the Scott family.

2015 Year 6, Henty Public School

We thank Cindy and the Scott Family for the support we were given as we learnt about dung beetles and how they can act as a pest control measure.

CONGRATULATIONS

Wirraminna Environmental Education Centre and the Creative Catchment Kids Program won the 2015 NSW Junior Landcare Team Award and will be competing in the 2016 National Landcare Awards.

NSW Government Local Land Services

Australian Government National Landcare Programme