**Biological Control Gone Bad! Story of the Cane Toad**

Cane toads were introduced to Australia in 1935 as a biological control method against the Greyback cane beetle that was destroying sugar cane crops. The Cane toad is native to South and Central America and had been used successfully as a biological control agent against beetles in Hawaii. This method of pest management went horribly wrong in Australia, however.

 The life history and ecology of the Cane toad was not fully considered before its introduction, nor was its interaction with the Greyback beetle it was introduced to control. First, sugar cane can reach 6 to 8 meters in height. The Greyback beetle usually feeds in the top of the sugar cane stalks. Cane toads cannot fly or climb, therefore could not reach the beetles. Another problem was the timing – the Greyback beetle tends to be out during the daytime and Cane toads feed at night. The two species are not seasonally compatible either, so are not in the same place at the same time of year. The Australian sugar cane fields are much dryer than those of the Cane toads’ native habitat and Hawaii. The toads need wet conditions to survive, so quickly moved from the sugar cane fields to moister areas. Its range has expanded southward, through Australia with no outlook of control.

 Why is the Cane toad able to spread so easily? Though they need moist conditions, they can live in a variety of habitats. They will eat just about anything that they can fit in their mouths. This includes small lizards, snakes, frogs, tadpoles, marsupials, mice, snails, and terrestrial and aquatic insects, and even pet food and human food items left outside. The Cane toad eats many native animals and often out-competes native species for food and breeding sites. Their breeding habits also contribute to their successfulness in being so invasive. Cane toads can breed year round and lay 8,000-30,000 eggs at a time (sometimes twice a year). Australia’s native frogs only lay 1,000-2,000 eggs per year, so cannot compete in numbers with the Cane toads’ reproduction.

 Another big issue with the Cane toad is that it is poisonous in all life stages. Adults have venom glands on their upper surface that exude toxic venom when the toad is provoked. Predators include birds, snakes, crocodiles, some mammals – even pets. Few predators in Australia have resistance to the Cane toad’s venom; therefore die when they try to eat them. In turn, they are not successful predators or agents in reducing the Cane toad population.

There is some hope in sight, however. Meat ants, a native insect of Australia, have been found to kill smaller toads living around bodies of water. A parasitic Lung worm, native to South America, also will kill the toads. Obviously, both of these options need to be researched heavily before initiating them as control. As of now, the main method for reducing populations of the toads is by euthanizing them manually (freezing, then disposing).

Directions: Answer the following questions in **COMPLETE SENTENCES.**

Expert Analysis Questions

1. Why was the Cane toad introduced to Australia?
2. Why was the Cane toad ineffective in controlling the Greyback cane beetle?
3. Why was the introduction of the Cane toad such a huge failure?
4. How would you propose controlling the cane toad?

Jigsaw Group Notes

Notes on Kudzu Vine:

Notes on Tansy Ragwort:

Discussion Questions:

1) Which invasive species do you think was the most harmful why?

1. How do you think we could increase public awareness of invasive species?