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# Oh BEHAVE!

Behavioral Education for  
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BEHAVE Outreach Program • 435-797-3576

The Newsletter for the  
BEHAVE Research and  
Outreach Program

## BEHAVE Principle of the Month:

**Change is Hard** – Most people and animals resist change. But did you know there's a neurological basis for resisting change? Each individual's brain is uniquely wired. When we change habits either by giving up a behavior or engaging in a new one, the neural networks in our brains change to make us more efficient. Change keeps brains flexible but all that rewiring is a lot of work for our bodies, which is why we resist change. Too much change, too fast can be overwhelming, even depressing. When contemplating a change, baby steps for you, your animals and your brains may be the best choice.



## Can Tannins Make Fireweed a Safe Forage for Cattle?

Fireweed is an invasive plant that grows from sea level up to 11,500 ft in Hawaii. It affects virtually all of the grazing lands on the islands of Maui and Hawaii. In some areas, fireweed makes up 30% of vegetation and can reduce forage production as much as 40% through competition and reduced grazing because cattle avoid plants growing near fireweed.

Fireweed contains pyrrolizidine alkaloids (PA) that cause permanent liver damage in cattle. Fireweed is considered unpalatable to cattle but deaths have been reported due to over-ingestion. Currently, we don't know how much fireweed cattle must eat to cause toxicity or the conditions under which cattle will eat fireweed at toxic levels.

Tannins are compounds found in some forbs and many woody plants. Tannins can bind to plant proteins and reduce digestibility but tannins may also bind to certain plant toxins enabling livestock to safely eat more plants with toxins. For example, livestock increase intake of forages with high levels of saponins or



Fireweed (*Senecio madagascariensis*)

alkaloids when they also eat plants high in tannin. Tannins may also bind to PA in fireweed and enable cattle to safely eat the plant.

USU graduate student, Carolyn Wong, is studying how cattle graze fireweed infested pastures. Her objectives are to determine: 1) how the level of fireweed in a pasture affects the amount of fireweed cattle eat; 2) if tannins enable cattle to safely eat more fireweed; and 3) recommendations for cattle grazing fireweed infested pastures to control its spread and minimize PA poisoning.

**Your Source  
for All Things  
BEHAVE**

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## **Sparrows Use Medicinal Leaves to Protect Nests**

These sparrows are definitely not birdbrains.

Some house sparrows line their nests with leaves from neem trees. Of 120 nests found in Sinthee, an area of Calcutta, India, all nests contained neem leaves. Of 230 nests located in other areas of the city, only 20 contained neem leaves but these nests were built near neem trees.

People in India use dry neem leaves to protect their clothes from insects and larvae. They also use extracts from neem leaves to cure skin ailments. Neem contains natural antiseptics and bug repellants.

Ticks, mites and insect larvae live in nests of house sparrows and damage both eggs and young. This population of house sparrows apparently learned to use neem leaves to combat insects and other parasites in their nests.



The story gets better. During an outbreak of malaria in 1998, this same population of house sparrows began eating and lining their nests with leaves from the paradise flower tree. Its leaves are rich in the anti-malarial drug quinine. When scientists removed leaves lining the nests, the sparrows quickly gathered paradise flower tree leaves to line their nests again.



## **Beth Burritt Gets a New Position**

On July 1<sup>st</sup>, I started a new job. I am now the Area Rangeland Resources Agent for Northern Utah. I'm still at USU in the same office and department, and my contact info hasn't changed. I plan to continue to write the newsletter and to expand and maintain the BEHAVE website.

So what will change? My focus will include a broader range of issues facing rangeland management. I'd also like to work more with land managers on demonstration projects to use behavioral principles to improve sustainability and profit-ability of range livestock operations.



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