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Authors

Horak, Katherine
Young, Julie
Mitchell, Adam
[et al.](#)

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Development of a New Coyote Toxicant (Abstract)

Katherine Horak

USDA APHIS, Wildlife Services, National Wildlife Research Center Headquarters, Fort Collins, Colorado

Julie Young

USDA APHIS, Wildlife Services, National Wildlife Research Center Predator Research Station, Millville, Utah

Adam Mitchell and Jason Bruemmer

USDA APHIS, Wildlife Services, National Wildlife Research Center Headquarters, Fort Collins, Colorado

ABSTRACT: In 1983, Savarie and colleagues did an extensive study of the toxicity of para-aminopropiophenone (PAPP) in multiple species of mammals and birds (Savarie et al. 1983). They tested 15 species and found that PAPP was toxic to coyotes: the LD₅₀ for coyotes via oral gavage in cod liver oil was 5.6 mg/kg. However, they also found that coyotes (and numerous other species) vomited after consuming PAPP and this vomiting likely decreased the efficacy of PAPP. They concluded that the induction of vomiting by PAPP must be addressed before it could be effective as a chemical to control coyotes (Savarie et al. 1983). Huo Ping Pan further investigated the effects of PAPP to coyotes in studies compiled in an internal report [Pan, unpublished report, National Wildlife Research Center (NWRC)]. In the study of Savarie et al. (1983), coyotes that consumed 150 mg PAPP in beef tallow baits vomited and recovered. Pan hypothesized that if the dose of PAPP was increased slightly, coyotes may succumb to PAPP without vomiting. He dosed coyotes with 200, 300, or 400 mg PAPP; all the coyotes except two at the 200 mg dose succumbed to the effects of PAPP. These two animals both lapsed into unconsciousness but had to be euthanized. One of these two animals and one animal at the 300 mg dose “slightly” vomited. Pan went on to test a dose of 350 mg more thoroughly. Nine of ten coyotes died within 2.5 hours of dosing and one survived. None of the ten coyotes dosed with 350 mg of PAPP vomited (Pan, unpublished report, NWRC). By increasing the dose of PAPP, Pan was able to overcome the problem of emesis that Savarie et al. (1983) reported. With the data generated from these studies, Pan and colleagues concluded that work with PAPP should continue, as they thought that it could be developed as a “superior substitute for 1080 as coyote control toxicant.” PAPP has been registered in New Zealand for the control of stoats and feral cats and in Australia for the control of wild dogs and foxes. The USDA APHIS Wildlife Services National Wildlife Research Center (NWRC) has an interest in the development of PAPP for coyote control. NWRC investigated the efficacy of PAPP as a means of lethal control in coyotes using multiple routes of administration. In initial studies, animals were orally gavaged with PAPP in an inert carrier to determine LD₅₀ values and test LD₁₀₀ doses. When used on the landscape a toxicant must be efficacious under varied conditions such as full or empty stomach. Therefore, after the initial trials, studies were done to determine the efficacy of PAPP in coyotes when the animals consumed PAPP with other food. Coyotes were also offered PAPP in meatballs and allowed to freely consume the food bait. In further trials, NWRC researchers tested the effectiveness of two different doses of PAPP capsules (880 mg and 400 mg) placed in a spring-loaded ejector device (SLED) to lethally control coyotes. Both doses were lethal to all coyotes tested, supporting further research into the development of PAPP as a tool to control coyotes.

KEY WORDS: *Canis latrans*, coyote, PAPP, para-aminopropiophenone, predator control, spring-loaded ejector device, SLED

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