

# Spying on Corn Rootworm Predators Nightlife

October 31 2009, By Don Comis

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Nocturnal predators like the carabid beetle, *Cyclotrachelus alternans*, have a large appetite for corn rootworms, the most costly pest of corn in the world.

(PhysOrg.com) -- Agricultural Research Service (ARS) entomologist Jonathan G. Lundgren, while exploring corn fields at night, has found a very different group of predators than the ones that feed during the day. It turns out that these night-time predators have a great appetite for corn rootworms, the most costly pest of corn in the world.

Research on day-active and night-active predatory insects is important for scientists who are developing strategies that maximize the potential of the natural predators in crop pest control.

During his night studies, Lundgren focuses on the top few inches of the soil surface, where rootworm larvae do most of their damage to corn

roots. Lundgren works at the ARS North Central Agricultural Research Laboratory in Brookings, S.D.

He's found that during the night, there is abundant and diverse life underground, with predators including ground beetles, rove beetles, spiders, crickets, and daddy-longlegs.

Wondering how so many and such diverse species could manage in the confines of the upper surface of [soil](#) near corn roots, Lundgren's research revealed the answer might be separation by time, with some insects confining their activity to as little as a three-hour window.

The scientists have two ways to spy on predators. One is to place pinned rootworms as sentinels. The researchers come back later with a red light to see which rootworms have been attacked and which predators are hanging around. Insects can't see red light. The second way is to collect predators in a timed trap. Trapped predators are analyzed for corn rootworm DNA. This gives researchers information about how long the predators are hunting and the amount of rootworms the predators eat.

Lundgren found that one common carabid beetle, *Poecilus chalcites*, prefers day work, while another common carabid, *Cyclotrachelus alternans*, works a night shift, from 10 p.m. to 3 a.m. Wolf spiders search for rootworms during the night, while some other spiders hunt during the day.

Provided by USDA Agricultural Research Service

Citation: Spying on Corn Rootworm Predators Nightlife (2009, October 31) retrieved 24 April 2024 from <https://phys.org/news/2009-10-spying-corn-rootworm-predators-nightlife.html>

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