

Smart Stuff

with Twig Walkingstick

Q. Dear Twig: Why don't porcupines stick to things? All those pointy quills and all ...

A. First, the quills ("kwills") on a porcupine mostly **point backward**. So when a porcupine climbs up a tree, for example, its quills don't aim forward and poke into things by mistake. Like branches, tree trunks or **the back ends of bears**.

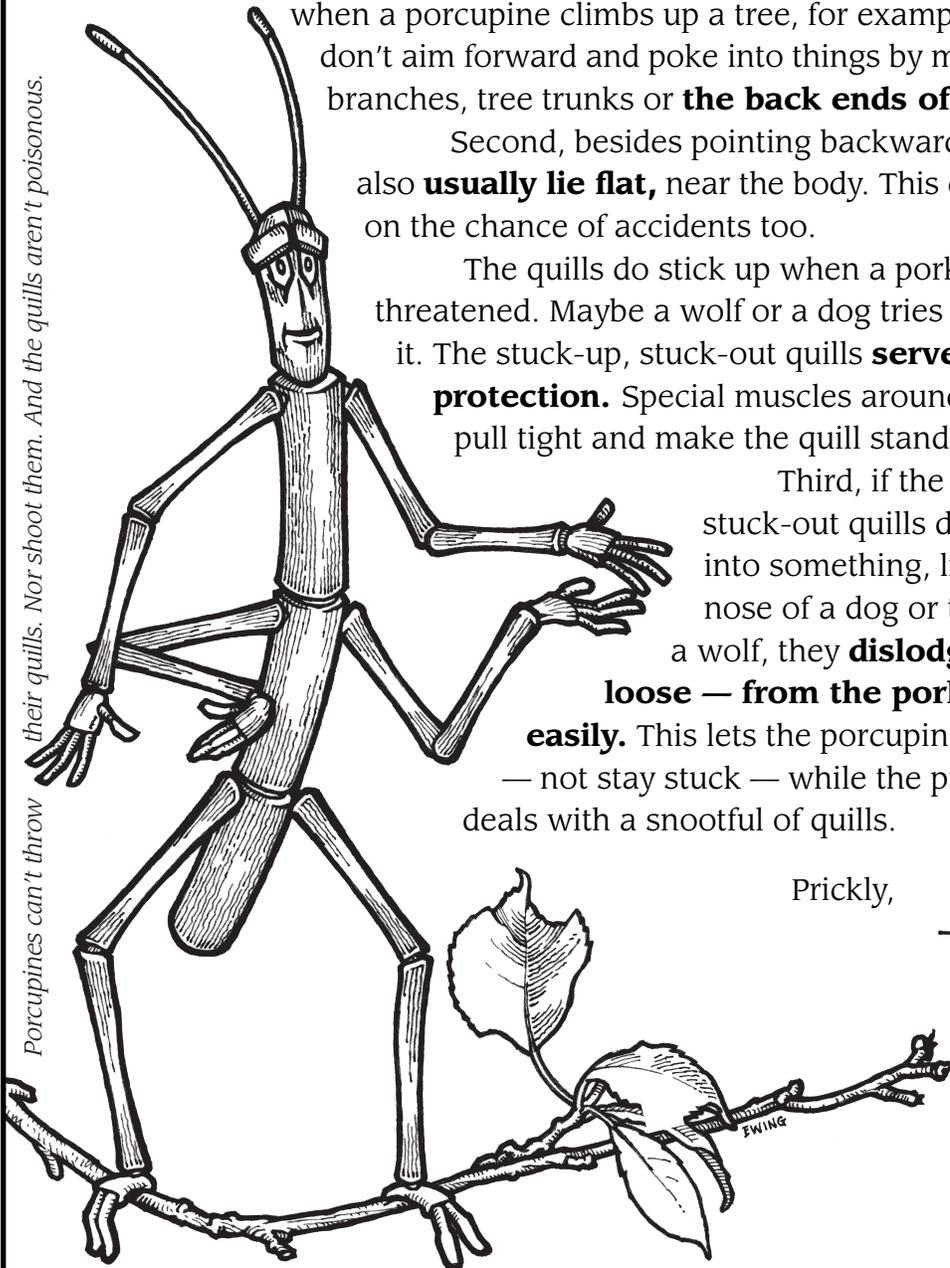
Second, besides pointing backward, the quills also **usually lie flat**, near the body. This cuts down on the chance of accidents too.

The quills do stick up when a porky feels threatened. Maybe a wolf or a dog tries to bother it. The stuck-up, stuck-out quills **serve as protection**. Special muscles around each quill pull tight and make the quill stand up.

Third, if the stuck-up, stuck-out quills do get stuck into something, like the nose of a dog or the snout of a wolf, they **dislodge — come loose — from the porky very easily**. This lets the porcupine get away — not stay stuck — while the predator deals with a snootful of quills.

Prickly,

Twig



Porcupines can't throw their quills. Nor shoot them. And the quills aren't poisonous.

From your scientific friends at The Ohio State University — specifically, the Ohio Agricultural Research and Development Center (www.oardc.ohio-state.edu) and OSU Extension (extension.osu.edu).



THE OHIO STATE UNIVERSITY

OHIO STATE UNIVERSITY
EXTENSION

OHIO AGRICULTURAL RESEARCH
AND DEVELOPMENT CENTER

For the week of
July 12, 2009

By Kurt Knebusch
(330) 263-3776
knebusch.1@osu.edu

Notes: The quills of the North American porcupine are barbed, hollow, modified hairs. A porcupine has about 30,000 of them. Scientists call the muscles that make quills stand up "piloerectors," while a special quill-holding skin part called the "spool" lets stuck-up, poked-into-something quills pull loose much more easily than relaxed ones do. Sources included "A Facilitated Release Mechanism for Quills of the North American Porcupine" by Uldis Roze, Queens College, New York, in *Journal of Mammalogy*, 2002; and "Smart Weapons" by Roze in *Natural History*, 2006. Twig has been vacationing in a place where porcupines live but hasn't, unfortunately, run into any. This column first ran Feb. 15, 2007.

Section of Communications
and Technology

2021 Coffey Road
Columbus, OH 43210-1044
(614) 292-2011

208 Research Services Bldg.
1680 Madison Ave.
Wooster, OH 44691-4096
(330) 263-3780

OSU Extension embraces human diversity and is committed to ensuring that all educational programs conducted by Ohio State University Extension are available to clientele on a nondiscriminatory basis without regard to race, color, age, gender identity or expression, disability, religion, sexual orientation, national origin, or veteran status. Keith L. Smith, Associate Vice President, Agricultural Administration and Director, OSU Extension. TDD No. 800-589-8292 (Ohio only) or 614-292-1868