page 14 this issue).

And what about the Australian evidence? An early human colonisation of Australia (a modern act in itself because it required sea crossing and language) by 60,000 years ago appears to be out of whack with the timing of modern human behaviour elsewhere (although perhaps consistent with the chronology of other modern anatomical data). Many are therefore cautiously sceptical of an early human arrival in Australia (see "A Matter of Time", *Nature Aust.* Spring 2000). Others argue for an earlier presence of apparently archaic humans (who may have been a lot smarter than previously thought). Still others believe that all of these contemporary archaic and modern human groups really formed a single widespread interbreeding population. The trouble is, until about 50,000 years ago, definitive evidence for the earliest of modern human behaviour out of Africa remains archaeologically elusive.

—R.F.

Confetti with a Punch

A Florida moth may have found the ultimate form of safe sex. Male Scarlet-bodied Wasp Moths (*Cosmosoma myrodora*) copulate for up to nine hours and lose a fifth of their body weight in the process. It's a big investment but these spectacular insects have evolved a way to assure safety from predators for both partners, and even for the offspring.

William Conner (Wake Forest University) and colleagues found that, before mating, male moths forage on *Eupatorium capillifolium* and possibly other plants that contain high levels of alkaloids. Alkaloids as a group are generally nasty tasting (they include caffeine, nicotine and quinine) and are strong deterrents for spiders. As the moths feed, these bitter chemicals become concentrated in filaments in two modified pouches in the moth's abdomen. When the male is drawn to the irresistible pheromone of a receptive female, he flies about her then explodes the alkaloid-laden pouches over her, covering her in a bridal veil of poison and providing her with immediate protection from spiders. Alkaloid-laden males and females caught in a web are quickly cut free by the spider, far more often than moths that haven't eaten or been showered with alkaloids.

The moth's sperm also contains alkaloids and so the female gets an extra protective dose during copulation. This she leaves as a legacy for her offspring (see also "Moths & STDs", *Nature Aust.* Winter 2000). Analysis of moth eggs shows they too contain alkaloids passed on by the mother, conferring protection from marauding ants and other predators.

Experiments show males that didn't shower their bride with the poisonous confetti only got to mate about half as often as males that failed to shower them at all. However, other data seem to indicate that females cannot in fact discriminate between alkaloid-laden and alkaloid-free males and that it may be the act of showering that secures a mate.

—A.T.

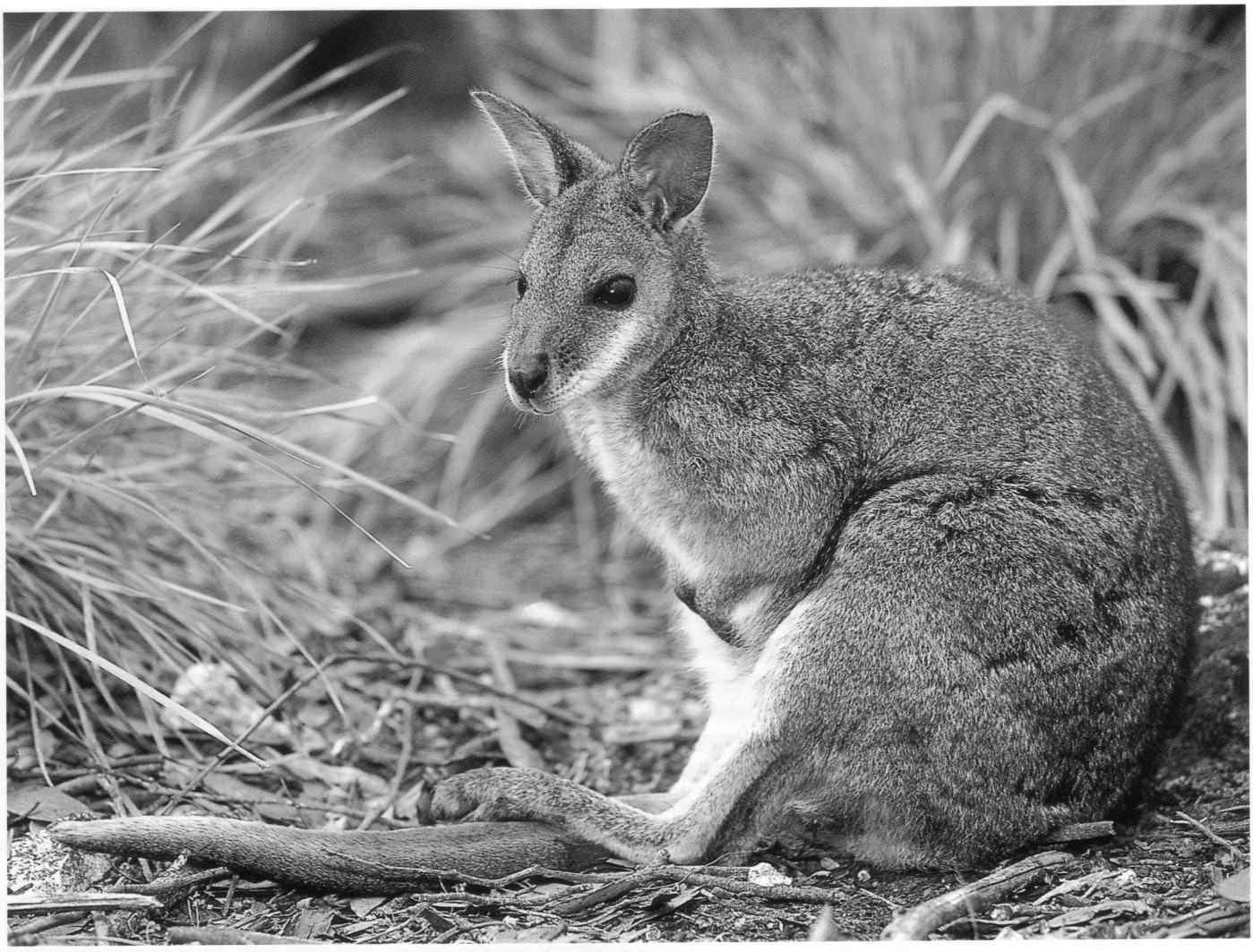
What Makes a Wallaby Jump?

Kangaroo Island has been virtually free from mammalian predators since rising seas isolated it from the Australian mainland 9,500 years ago. Yet a new study has revealed that, despite living in such idyllic conditions for thousands of generations, the island's Tammar Wallabies (*Macropus eugenii*) can still distinguish friend from foe—but only on sight, not sound.

Daniel Blumstein and colleagues from Macquarie University were curious about the degree to which anti-predator behaviour persists over time in a predator-free environment. They tested the response of a captive population of Tammar Wallabies to the sight of a molded foam Thylacine (an historical predator), and to taxidermic

The male Scarlet-bodied Wasp Moth showers his 'bride' with bitter tufts.

COURTESY WILLIAM E. CONNER



JEAN-PAUL FERRERO/AUSCAPE

Predators of Tammar Wallabies are seen but not heard.

mounts of a Red Fox and Cat (evolutionarily novel predators). The wallabies reacted strongly to both the Fox and the Cat. They stopped foraging and became more watchful and, in the case of the Fox, thumped their feet much more when compared with control stimuli (which included the cart on which all mounts were presented). There was no real response to the model Thylacine, however, which made the researchers wonder about the importance of fur and other 'natural' features for predator recognition.

When played sound recordings of a Wedge-tailed Eagle (an historical and current predator) and the howl of a Dingo (an evolutionarily novel predator), the wallabies made no response, reacting only to the playback of wallaby foot thumps with reduced foraging and increased vigilance behaviours.

The researchers suggest that the foot thumps act as a generalised anti-predator alarm signal in Tammar Wallabies, and that the wallabies reacted to the mounts because of a general similarity in predator size, shape and forward-placement of the eyes. But while predator morphology is convergent, vocalisations are not, hence the wallabies' inability to recognise any predator's call, new or old.

—R.S.

Monkeys Make Medicine

The lush tropical jungle of South America may look like paradise, but pity the poor animals that have to live there. Unrelenting rainfall and suffocating humidity may be unpleasant to live with, but ferocious biting insects and tropical disease make life unbearable. Yet Wedge-capped Capuchin Monkeys (*Cebus olivaceus)* have found an ingenious way to deal with the discomforts of rainforest life. By rubbing the oozing discharge of certain millipedes (*Orthoporus dorsovittatus*) through their fur, the monkeys ward off the constant irritation of mosquitoes with a naturally derived insecticide.

A team of scientists led by anthropologist Ximena Valderrama (Columbia University) observed this behaviour in wild capuchin monkeys in Venezuela. The monkeys anointed themselves only during the rainy season when mosquitoes are abundant and the risk of bot-fly infection increases. Groups of capuchins would share millipedes they found during foraging outings, with each monkey taking turns to vigorously rub the live millipede through its coat before it was eventually thrown away.

The researchers were intrigued to learn more about the millipede's defensive compounds that the monkeys found so attractive.