



# NOW YOU SEE THEM...

## Finding the White-throated Needletail

Capable of flying at great speeds to heights beyond the detection of the human eye, the White-throated Needletail is becoming even more elusive, according to Australia's leading swift expert, **Mike Tarburton.**

During the last austral season of the White-throated Needletail, I spent more time than in previous seasons scanning the skies over Victorian forests through binoculars. For entire days at a time I would search at sites that I knew these birds used for both feeding and as flyways. One needletail flock was above me at the Helipad in Bunyip State Park for two-and-a-half hours, but only came low enough for any of them to be seen without binoculars for just six minutes. At other times, both in that spot and at the Gentle Annie section of the park, flocks were above me for an hour or two without ever coming low enough to be seen without binoculars. This means they remained between approximately 900 metres and 1.7 kilometres above the ground.

This phenomenon of high altitude feeding and travel is not surprising. White-throated Needletails have a high proportion of haemoglobin in their blood, allowing them to gather the maximum amount of oxygen from the thinner air of high elevations as they chase the many insects that fly at these levels. What is exciting about watching needletails at high altitudes is that once they have eaten enough to feel content, they divide into pairs and perform coordinated flight displays. The two birds remain a set distance apart (between 20 centimetres and 2 metres), while they perform loops, sharp turns, barrel-rolls, and high-speed dives, in what one Russian observer described as gliding "connected by an invisible thread."

If you are fortunate enough to see these dives, which commence at 1.5 kilometres up and plummet down to tree-top level, you will receive an adrenalin rush as they easily pass the 200 kilometres per hour limit—before bouncing back up and out of normal vision. On a March day at the Upper Yarra Reservoir Lookout, I had been watching five pairs performing exclusively at great heights for nearly an hour, when some moved to the hill that the lookout is on and started doing power-dives down the side. This meant some of them passed over the lookout, and the roar of the wind in their wings amazed me, even though I have heard it before from birds at slower speeds in Queensland and New South Wales.

I have measured the flight speed of White-rumped Swiftlets entering the huge cave in which they sleep in Fiji at speeds of up to 106 kilometres per hour, and of Australian Swiftlets entering their cave at Chillagoe at speeds of up to 111 kilometres per hour. They were exciting experiences, but nowhere near the excitement generated while watching needletails perform their power dives in the open sky.

If we can extrapolate from the knowledge gained through European studies of the Common Swift, then at least part of the reason it is advantageous to maintain their pair bond while wintering in the southern hemisphere is that paired birds are able to start breeding earlier than unpaired birds. This means they can choose the best nest sites—with little competition—close to good feeding areas in their prime breeding grounds in Siberia. As a result, they raise more young than late nesters.

The problem is that finding good breeding sites is becoming more difficult in Siberia, due to the increasing rate of logging the Taiga forests, which our birds are dependent on for nest hollows. Russian research indicates that the needletails breed in tall, hollow stumps of poplars, spruces, larches and oaks along rivers and around swamps. The water and low swamp vegetation allows the birds clear air spaces to approach their nesting hollows, and the water also provides the abundant supply of aquatic insects that they feed on. They will also breed in stumps in small fire-cleared patches, but where clear-felling has occurred over large areas, there are no stumps left for breeding.

Much of the logging is illegal and clear-felling is common practice, leaving no mature trees at all—so no hollows. In 2013, WWF Moscow reported that illegal logging had reached crisis proportions in the Russian Far East, with the volume of Mongolian Oak logged between 2004 and 2011 exceeding authorised logging by 200-400 per cent. In 2010, the former head of the Primorsky Province forest Management agency, Pyotr Diuk, stated that 400-500 per cent more than the annual legal logging limit had been harvested each year under his control, and that in five years there would be no more oak, and in 10 years no more ash. That five-year prediction is up this year, and means a lot fewer nesting sites for our needletails.

The WWF added that the exhaustion of valuable hardwood stocks in managed forests due to timber theft is driving legal and illegal loggers into sensitive areas not zoned for

The White-throated Needletail has the fastest flight recorded for any bird species. Photos by Peter Scholer and Gary Casey



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commercial logging, including declared wildlife reserves. One local source, who must remain anonymous for his own safety, shared with me how loggers would set the forest alight, take photos, send them to authorities in Moscow and claim that the fire had destroyed a much larger amount of the forest, then harvest that amount.

This has meant a significant decline in the average flock size in Australia every decade since 1950. In a 2014 article in *Australian Field Ornithology*, I analysed pooled data from across Australia that demonstrated numbers had dropped by almost three quarters. This and other studies have led BirdLife Australia's Research and Conservation Committee to uplist the conservation status of the White-throated Needletail to Vulnerable.

If needletails are in decline, how is it that we still get a few flocks of a thousand birds? Particularly in the last three seasons, with abnormal weather patterns, the birds have grouped more than usual in south-eastern Queensland and north-eastern NSW, for longer than usual, before many moved on to southern NSW, Victoria and Tasmania. The evidence for this is that while some observers in Brisbane and south-eastern Queensland saw birds on many occasions, others nearby did not see their first flock until January, and then saw very few afterwards. When flock sizes and frequency of sightings in Queensland declined, the number of sightings and flock sizes increased further south—showing that the extra large flocks came from northern and southern birds mixing around south-eastern Queensland.

It would be all too easy to sit back and blame others for the steep decline in needletails. However, these birds also face a series of problems while in Australia. Some of the greatest declines have been over urban areas, such as the airspace above Melbourne's eastern suburbs which was once a regular summer haunt for needletails, the mix of open space, orchards and market gardens providing a rich source of flying insects. With the spread of housing developments, this source of insects dried up and sightings are now few and far between. Loss of habitat to logging and wildfires can affect local numbers of needletails but apparently not necessarily over the longer term. There are other, less immediately obvious issues that could also be affecting needletail numbers in Australia.

It was also not long ago that we learnt what the natural predator of the needletail is while in Australia. Matthew Stanton conducted his Masters research in the Pilliga Scrub of northern NSW and found needletail remains in 26 regurgitated pellets of the Barking Owl. He also saw on three occasions a needletail come in to roost an hour or so after dark on a vertical ironbark or White Cypress trunk or branch, and a Barking Owl come

up from below (thus avoiding its silhouette against the sky) very soon after the needletail had landed. The Barking Owl, itself listed as Vulnerable in NSW, is unlikely to be a major cause of the decline, however, as presumably they have been in Australia for as long as the needletails have, and are thus part of the balanced regulatory mechanisms in the ecosystem.

Ornithologists have usually thought of the Peregrine Falcon as a possible predator, but those I have seen near needletails appeared to know they had met their match, and showed no signs of attack. Chris Lloyd recently watched the interactions between a pair of Peregrine Falcons and a flock of 1,000 White-throated Needletails. His conclusion was that the needletails appeared capable of out-accelerating the falcon both in a straight line and in climbing. Carol Proberts has also observed a flock of needletails circling around a chimney where a Peregrine was resting, but no attack was launched. Mick Roderick, myself, and others have observed Peregrine Falcons circling in the same thermal as Needletails, with no obvious interaction, and I am not aware of any evidence of a Peregrine taking a needletail. But keep your eyes peeled!

One emerging threat may well be wind farms. A ten-year study at two wind farms in north-western Tasmania by Cindy Hull and colleagues has shown that although 80 per cent of bird species using the airspace over the wind farms are not affected by the turbines, the White-throated Needletail is the species most killed at one farm, and the second-most killed at the other.

It would be naïve to think the problem existed only in Tasmania. I recently dug out reports from the Atlas of Living Australia for six needletails that were found dead, and when plotting the co-ordinates showed that they all came from a wind farm north of Canberra, and east of Lake George. This is not yet being reported elsewhere, but if we looked I am sure we would find needletails dying at many wind farms in other states. After all, the death of one bird that strayed to Europe in June 2013, instead of coming to Australia, was killed by a wind-turbine on the Scottish isle of Harris, and was witnessed by many of the 80 British birdwatchers who had gone to the island to see the bird.

So when you are on a suitably elevated viewing site in the forests of eastern Australia between October and April, and are enjoying the mental challenge of following the aerial dances of courting needletails, or just watching them manoeuvring effortlessly to catch their prey, take a thought about storing that enjoyment. The birds involved are in serious decline and we are seeing them much less frequently than any time in recorded history.

**Left:** The needletail's life-saving foot grip: the anisodactyl configuration of a pair of toes opposing another pair allows the bird to stay safely secured to vertical surfaces. Photo by Mike Tarburton

**Centre:** White-throated Needletails spend most of their life in the air and are rarely seen roosting. The yellow square marks the upper trunk of a White Cypress Pine where a White-throated Needletail alighted at dusk. Unfortunately it was unable to stay for the night—it was taken by a Barking Owl 30 seconds after bedding down. Photo by Matthew Stanton

**Right:** Able to fly almost two kilometres above the ground, White-throated Needletails dart after insects and, when sated, perform coordinated acrobatic displays. Photo by Peter Scholer