

Survey protocol for the Northern Shrike-tit (*Falcunculus frontatus whitei*)

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Purpose

This short note is aimed at land manager, developers, consultants and biologists to assist in the detection of the northern shrike-tit, a listed threatened species requiring a high level of conservation management.

Introduction

The northern shrike-tit (*Falcunculus frontatus whitei*) (figure 1) is a subspecies of the crested shrike-tit of eastern and south-eastern Australia. It is sparsely distributed across the top half of the NT and across to the western Kimberley in Western Australia.

The first records for the subspecies in the NT came from the Borroloola region in 1913 and included nesting records, but they have not been recorded in the area since. In a review of its status, Robinson and Woinarski (1992) collated all the then-known records for the subspecies and could locate only 26 records from 22 localities.

The subspecies is listed as 'vulnerable' under national legislation, as Near Threatened under NT legislation, and as 'Fauna that is rare or is likely to become extinct' in Western Australia.

Following publication of a recovery plan for this species in 2004 (Woinarski 2004 – no longer considered current), recovery actions were partly funded by an NHT program in mid 2007. That project studied basic aspects of the species' ecology at a single population in the Maranboy area, south-east of Katherine, including foraging behaviour, habitat requirements and breeding biology.

Results from this project provide the first substantial data on the nesting habits (Ward et al 2009), survey methods (this document) and abundance for this subspecies (DENR unpublished).

Figure 1. The northern shrike-tit *Falcunculus frontatus whitei* (Photo: Trevor Collins).



Figure 2. Habitats occupied by northern shrike-tits.

- a) mixed eucalypt woodland (to 16m) on heavy impeded soils (Maranboy area January 2008)



- b) melaleuca woodland (to 6m) in grassy drainage lines (north- eastern Arnhem Land March 2009)



Pairs of northern shrike-tits occupy exclusive territories (c. 22ha in area) and are resident in an area year-round.

Recent records for shrike-tits in the Katherine region come from open mixed eucalypt woodland habitat (figure 2a) with a grassy understorey on heavy soils that are shallowly inundated for much of the wet season.

Surveys indicate a density of about 2¼ pairs per km², but only in limited areas of suitable habitat. Other recent records in northern Arnhem Land (near Maningrida and west of Nhulunbuy) come from low melaleuca woodlands in grassy drainage lines (figure 2b).

There are other reports of the species in more hilly areas (e.g. Borroloola area and Yinberrie Hills), but details of the habitat are not available.

The relatively small size of shrike-tits (15 to 17cm total length), their quiet foraging behaviour and sparse distribution probably contribute to the paucity of records for the subspecies. However, they are easily identified once seen and have a distinctive call. Broadcast of this call and listening for responses forms the basis of this survey protocol.

The call of the northern subspecies is distinct from that of other subspecies of shrike-tits and a recording is available in Plowright (2007).

The protocol

Survey design

Broadcast surveys for shrike-tits are done at a series of sites 500m or more apart.

At each site:

- i. broadcast the call of the northern shrike-tit at high volume for five minutes
- ii. move the player five to 10m and set it up to broadcast in another direction
- iii. broadcast the call for another five minutes
- iv. during the broadcasts and for at least two minutes afterwards, listen for calls of shrike-tits in response to the broadcast
- v. use binoculars to identify any birds active in the trees around the broadcast site
- vi. placing broadcast equipment on a log or low in a tree and walking a short distance looking/listening in various directions can aid in detection.

The three most common responses from shrike-tits to the broadcast are:

- make the territorial call from a distance and continue foraging – hearing the call is sufficient to identify the presence of northern shrike-tits at that location
- fly to the area above the broadcast speaker and, often, give a chuckle call or
- ignore the broadcast (in which case they will not be detected – false negative).

Given the large size of territories, it is also possible that a broadcast will not be heard by resident birds, in which case they will not be detected (false negative).

Northern shrike-tit calls and broadcasting equipment

We have successfully used the recording published by Plowright (2007) to survey for northern shrike-tits. This recording includes both the drawn-out territorial call (almost a whistle), which is most often heard during surveys, and a chuckle or chatter call which is generally only heard at short-range and usually when the bird appears annoyed or confused.

The calls were transferred from the CD format to MP3 file, and copies of the MP3 file stitched together to provide a five-minute recording. We did this using the open source audio editing software called 'Audacity'. We also used this software to increase the volume of the recording.

The five-minute recording was loaded on a portable MP3 player or mobile telephone and broadcast through small portable speakers.

Timing of surveys

Northern shrike-tits breed in the build-up and early wet-season and during this time are most vocal and defensive of their territory. So September to March is probably the best time of year to do broadcast surveys for the species (though there is some suggestion of them being quiet around January). Unfortunately this is also the most uncomfortable time of year for observers.

Shrike-tits may respond to broadcast surveys at other times of year, but their detectability will be lower, so more false negatives should be expected.

Shrike-tits, like many other bird species, are more active in the early morning and late afternoon. Hence surveys are best done before 11:00am or after 4:30pm. Rain or windy weather also makes it difficult to detect the birds and surveys should not occur under such conditions.

Detectability and survey effort

There have been no detailed analyses of the detectability of the species. Northern shrike-tits will respond to the broadcast calls under the right conditions (currently unknown). However, failure to detect the species at a site using this protocol does not guarantee that the species is absent.

Initial surveys in a region should concentrate surveys in areas of the preferred habitat (see introduction). More-detailed surveys, such as pre-development or clearing surveys within the known distribution, should be more intensive, at about 500m intervals along tracks or roads (or walking through potential habitat).

Given the size of shrike-tit territories, survey sites more than 500m apart are likely to sample different pairs/territories of shrike-tits.

References

- Plowright H. (ed.) (2007) *A Field Guide to Australian Birdsong. CD8 Jacky winter to grey shrike-thrush*. Bird Observers Club of Australia, Melbourne.
- Robinson, D. and Woinarski, J.C.Z. (1992) A review of records of the northern shrike-tit *Falcunculus frontatus whitei* in northwestern Australia. *South Australian Ornithologist* 31, 111 to 117.
- Ward, S.J., Berghout, M. and Baker, B. (2009) Notes on the form and habitat of nests of the northern shrike-tit. *NT Naturalist* (in press).

Woinarski, J.C.Z. (2004). *National multi-species Recovery Plan for the Partridge pigeon [eastern subspecies] Geophaps smithii smithii; crested shrike-tit [northern (sub)species] Falcunculus (frontatus) whitei; masked owl [north Australian mainland subspecies] Tyto novaehollandiae kimberlii; and masked owl [Tiwi Islands subspecies] Tyto novaehollandiae melvillensis, 2004-2008.* (NT Department of Infrastructure Planning and Environment: Darwin.) ¹

¹ <http://www.environment.gov.au/resource/national-multi-species-recovery-plan-partridge-pigeon-eastern-subspecies-geophaps-smithii>