Notes for the Organisers of Rufous Scrub-bird Surveys

Following our initial camp at the Gloucester Tops (15-17 September) it is timely to share our experience with other groups which are starting IBA monitoring for Rufous Scrub-birds.

Pre-camp site pilot visit

Three of us made a half day visit to Gloucester Tops approximately three weeks before the camp, and marked up and surveyed 2 km of transect plus we finalised our selection of additional transects. We identified an area with a known Rufous Scrub-bird territory. Both this bird and another scrub-bird were calling strongly. This gave us confidence in the survey approach and experience which we could relate to when briefing participants at the camp. ***(Strongly recommended).***

Selection of transects

We identified over 20 km of potential transects at locations where studies had been conducted previously by Simon Ferrier (1981) and in surveys coordinated by Peter Ekert (1999-2005). Because of uncertainties in the number of participants we prioritised these transects for investigation based on ease of access, relative historical importance for scrub-birds and variety of habitat. With 9 participants and good weather we were able to conduct duplicate surveys covering 19 km of transects, including 90% of the transects used in Ferrier's study. This was our stretch target and exceeded expectations. 9 km of transects were on or immediately adjacent to roads allowing participants to be dropped off and walk down hill to parked vehicles. 10km of transects were in more demanding terrain requiring return route surveys and in two cases wading across the Gloucester River in Wellington Boots.

This mix in terrain difficulty allows variations in participant fitness to be accommodated if necessary.

Our transects are almost exclusively over 1100m in high potential Rufous Scrub-bird territory where there is good baseline data for the survey effort.

At a future date we intend to extend the study to surveys at lower altitude. Ferrier's method allows the estimation of Scrub-bird breeding territory density from a single transect survey. Provided we can verify this method in our core study area it will be employed in the lower altitude habitat and will not require a lot of survey effort.

Measuring and Marking Transects

On the first day of the camp 8km of transects along roads were measured using cars and marked with yellow tape attached to trees on both sides of the road.

The absence of roads precluded this approach for the other transects. Hence participants were asked to measure and mark transects on the first day using GPS units in odometer mode. Logistically this required walking directly along transects to determine the boundaries and doing detailed survey work on the return trip. However,

we have subsequently become aware that this did not provide accurate distance measurements, particularly when passing through patches of dense beech forest.

GPS coordinates were taken at the transect end points and at transect centres where the altitude was also measured.

Subsequently we have managed to estimate transect lengths between the end point coordinates using Google maps.

It is desirable but not essential to have transects exactly 1 km in length. Provided the transect distance is known scrub-bird territory densities can be calculated.

We consider the best way to set up transects when vehicles can not be used is to assign way points on Google maps at 1km intervals and then make a field trip out to find these points and mark the transects. ***It is recommended that if possible this is done before the surveys commence.*** Fortunately GPS units worked well in determining the coordinates of way points and scrub-bird territories. This was demonstrated by achieving a good fit of scrub-bird territory coordinates to the tracks on maps. We are fortunate in having several people proficient in these techniques and may be able to provide assistance if necessary.

An inferior alternative is to step out the distance along a measured road track and use this calibration to pace out tracks in more remote terrain.

(It is recommended that transects are measured and marked before surveys commence to prevent participant confusion).

Effective marking of transect limits

It is easy to miss end point markers when making surveys, particularly when distracted by a calling scrub-bird near the end of transects.

Place all markers in prominent positions on both sides of the track. Having some dangling tape provides additional visibility.

Ensure that no other positions, such as scrub-bird territories are marked with the same coloured tape.

The Gloucester Tops NPWS requested us to use yellow tape because pink had been used in previous studies. Our experience is that pink tape is far more easily noticed.

Numbered steel pickets with attached tapes will provide a more permanent option but even these may disappear during track maintenance (Ekert's studies).

During briefing it is important to alert participants to the difficulties associated with finding markers and emphasise the need to refrain from doing any additional marking on transects.

Provide participants with the end point coordinates of their assigned transects and ask them to check periodically that they are within the appropriate transect. Also ensure

that their GPS units are set to WGS84 format and are providing accurate measurements. When we had all the surveyors assembled for the initial briefing, we asked everybody to determine the coordinates using their GPS. That gave us a quick check that everybody was set to the WGS84 format and knew how to use a GPS ***(strongly recommended).***

Survey teams were assigned different sets of transects each day. Lack of prior familiarity with the survey route exacerbated the difficulty in locating transect boundaries.

(Recommendation carefully check participant GPS skills and equipment during briefings and emphasise the need to avoid placement of confusing markings).

Training and Rufous Scrub-bird call identification

We found a combination of the taped calls and taking people to a territory where a Rufous Scrub-bird was calling consistently enabled all participants to identify calling birds with confidence the following day. Fortunately most birds in our area predominantly were using the repeated clinking call. Some birds making less easily diagnosed calls and employing mimicry may have been missed. A group approach to estimating the distance of the calling bird was used to gauge the spread of estimates and allow individuals to learn whether they were outside the norm (however this does not mean they were wrong). ***(Exposing participants to a bird calling in the field is recommended if practicable).***

Simplifying the Record Sheet

This is a work in progress. We are trying to minimise the amount of information recorded and ensure there is a minimum of ambiguity in the information recorded. The main changes from the existing record sheet will be in the following areas.

- Ensuring that there is no ambiguity concerning where the scrub-bird was calling or seen. While the documentation and the participant briefing at the camp stressed the need for this information the record sheet did not specifically request the information. Consequently in a number of cases it was not recorded and follow up discussion with observers was necessary. To ensure there is no ambiguity in future participants will be asked to provide a sketch on the back side of the record sheet of the location of all scrub-bird records and indicate the orientation of the sketch (e.g. by showing the codes of adjacent transects, a prominent feature like a river at the end of a transect or the direction of north).
- The record sheet now asks whether the bird was identified by the clinking call and for how long it called. A positive response to this question helps provide confidence in a record when a participant with unknown field experience is involved. If other calls were used more information is requested.
- There is only need to record habitat once and to simplify documentation and analysis it is suggested that Ferrier's approach is adopted, namely to identify territories as a first step and follow up later with habitat classification. At Gloucester Tops most scrub-birds were heard in open eucalypt forest near beech forest where there was dense growth from 2 to 50 cm and understorey to

1m. The record sheet will seek confirmation that this type of territory is involved and only seek further details by default. However it has been pointed out that it is essential that at least a sample of sites are classified to provide a baseline against which future changes can be gauged. At Gloucester Tops it may be possible to compare the habitat descriptions of territories made by Ferrier in 1981 with those currently occupied. This may require specialist skills and may be a role for NPWS personnel.

(It is recommended that field data collection during surveys is made as simple as possible and the participants are trained in how to mark the location of a calling scrub-birds on a transect sketch map).

Making prior knowledge of territories available to surveyors

During our initial surveys the first day's team was asked to refrain from telling the second day's team where they had seen scrub-bird territories. With hindsight it may be better for teams to have knowledge of where they are likely to locate scrub-birds. For instance Ferrier would have been very aware of points at which he expected to hear scrub-birds. This is an interesting issue because it impacts on his detectability factors which would be expected to be higher than for an observer in unfamiliar with the territories in a transect. As the purpose of these surveys is to locate and confirm all scrub-bird territories in separate months as well as to make comparisons with Ferrier's baseline results a case can be made out for telling observers where they are likely to hear calling scrub-birds. This can be done by showing them sketch maps with the known territories marked up and providing GPS coordinates. Another option is to mark the territories with tape of a different colour to the transect end markers, but this has the potential to cause confusion and is not preferred.

(It is recommended that observers are provided with information about the locations where they are likely to hear calling scrub-birds.)

Using Playback of Taped calls

It was agreed with NPWS that we would not use playback at this point because it is potentially invasive. In addition there is no evidence that it is beneficial. However, in the application for a Scientific Permit for the overall project, currently in process, NPWS have included an option to use call playback at some future date. This allows for some future flexibility.

(It is recommended that call playback is not used at other IBAs.)

Making information on the scrub-bird territories publicly available.

This is a contentious issue. People wish to know where the territories are so they can get an easy "twitch", which often involves the use of playback. As playback is not sanctioned by NPWS we suggest our information is with held other than to survey participants. We should be prepared to tell people where good areas are and ask them to contribute to the survey effort.

(***It is recommended that the general public receive only generic information on good areas for Rufous Scrub-birds rather than actual territory coordinates, and that they be encouraged to contribute to the project's aims*** e.g. to fill out survey sheets and/or supply GPS coordinates of any birds they detect.)

Humidity and Temperature Measurement.

Humidity has a high impact on the detection of calling scrub-birds. Temperature is less important for scrub-birds, but should also be recorded because of its impact on the activity of other species. It is suggested that these parameters should be measured by the survey organisers and applied generically to all results for that day.

Unfortunately during the Gloucester Tops surveys in September our equipment failed and humidity had to be estimated.

Debriefing of Participants and Subsequent Feedback of Results.

It is imperative that this is done well to get maximum benefit from the survey effort and to get people to come back. A number of aspects are summarised below.

- It is beneficial to talk to people about their scrub-bird encounters, particularly when trying to determine whether double counting of birds is involved.
- If the survey team is too large this will not be possible unless several people are involved in the discussion of observations and the checking of forms. One person dealing with four survey teams is probably optimal.
- Debriefing needs to be conducted in a quiet atmosphere with minium background conversation, because the issues of interpretation can be complex.
- People need to feel their effort has been worthwhile. Lots of scrub-birds are a good start and we fortunately had them in heaps. Amazingly our team was not concerned about failing to see a scrub-bird and those who did see one felt appropriately privileged. However we need to look at ways of making a sighting happen in the future.
- Early feedback on the results is important; hence our interim report, which was sent to both the participants and the project steering committee simultaneously.
- Some people needed to get away promptly on the final day and the quality of the debriefing process suffered as a consequence. This meant a lot of chasing up afterwards, which is sub-optimal.

Interpretation of Scrub-bird Results

It is intended to put out a separate report on this topic in the near future with some specific examples. The background documentation to participants has been revised and draws attention to the possibility of lozenge shaped territories with more than one calling point as well as the possibility of clustered territories. Where ambiguity in interpretation exists it may be necessary to ask the survey team to split up and try and determine whether separate reports of calling birds say 250m apart are from a single or two birds by finding if they are calling at the same time. On occasions teams in the field will do this spontaneously and the briefing document foreshadows this possibility. Indeed this can be achieved by a single observer moving quickly to and fro between two calling birds. In sorting out these complex situations it is important to

build up field skills in describing the unique identifying features on a transect track near a territory which can be used when comparing notes with people who have heard a bird in that area previously (e.g. a near a fallen tree or a culvert on a track). It is important to build up a culture of this type of dialogue between the teams.

(Continue to build up experience in differentiating between clustered territories and single birds with complex territory profiles.)

Communications during the surveys

We experimented with the use of walkie-talkies to allow communications between the teams, or with the survey organisers. This was driven by both organisational and safety factors, since the teams were heading into remote and rugged terrain. We had some success, using 5W units operating at full power. In our October survey, we will trial the use of high range aerials. This is a work-in-progress.

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