# FORK-TAILED SWIFT SIGHTINGS

## 30KM SE OF TOWNSVILLE 26/01/2012

## Count – explanatory / methodology statement

Date: - 26/01/2012 – Australia Day
Time 1000hrs to 1400hrs
Weather: overcast – showers – hot - very humid

Event Summary: - More than an estimated 215,000 Fork-tailed Swift were observed about 30 km SE of Townsville on Australia Day 2012.

Contributing Observers (All are experienced Birders)

Vehicle 1 (V1)
Len Ezzy (Vehicle Driver, Senior Cartographer), Chris Ezzy, Janet Robino (President TRBOC)

Vehicle 2 (V2)
John Stewart (Maths teacher - retired), Christine Stewart

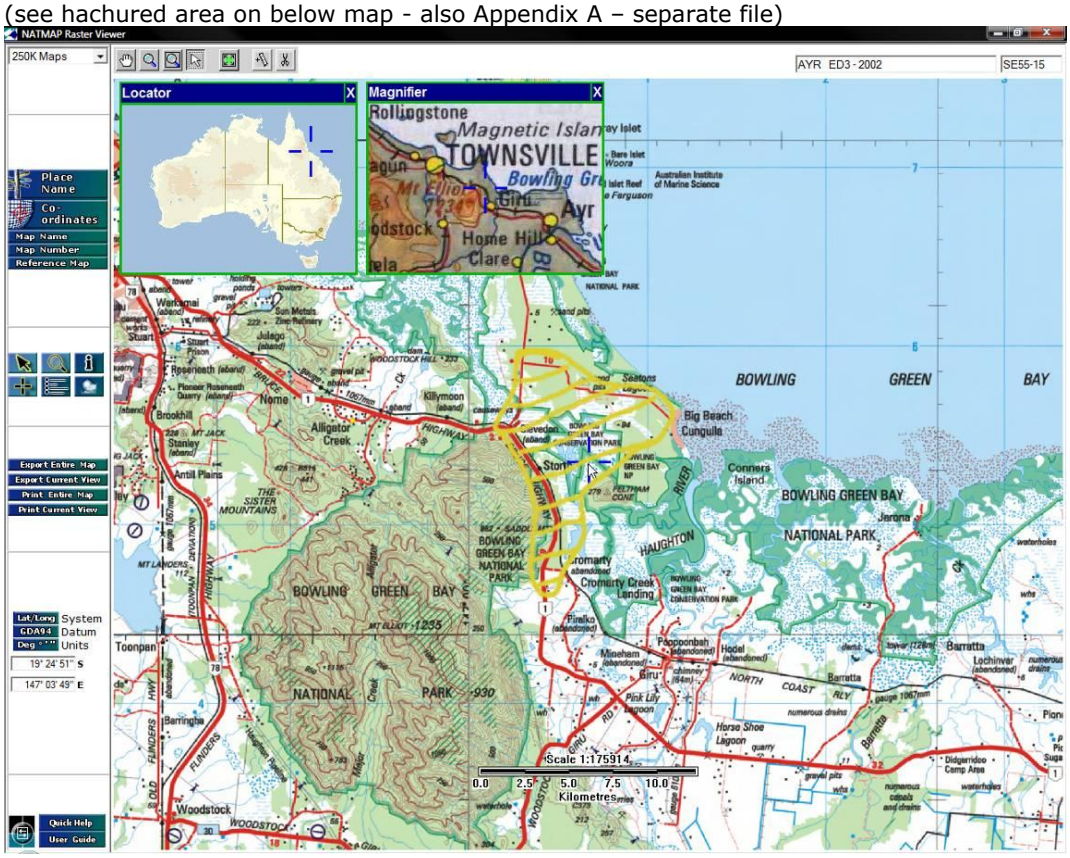
Vehicle 3 (V3)
Peter Valentine (Associate Professor, School of Earth and Environmental Sciences, James Cook University, Townsville, Queensland, Australia)

Background:- After a Townsville Region Bird Observers Club (TRBOC) morning outing to Alligator Creek in the Mount Elliot Section of North Queensland's Bowling Green Bay National Park, several birders from the outing (in V2 and V3) decided to continue their birding and so extended their time further east to the areas of Cape Cleveland Road and Crocodile Creek Road. Those birders in V1 continued south along the Bruce Highway to Cromarty Road, then the town of Giru, over the Haughton River Bridge, down Hodel Road and Morris Creek Road in search of Zitting Cisticolas.

Then returning after lunch to those same areas, Bruce Highway from Cromarty Road, then turning right into Cape Cleveland Road, then further along turning right again on to Carty Road, Goodsell Road and finally on to the Coastal township of Cungulla where it was the intentions of the birders in V1 to complete a monthly "Shorebirds 2020" survey.

On our journey back to Townsville at about 1500hrs - 1530hrs, after having completed our Shorebirds 2020 count, it was interesting to note that the FTS in the same count areas, right back to the Bruce Highway, had almost disappeared from the area completely.

Geographic location: - 30km south east of Townsville
(see hachured area on below map - also Appendix A – separate file)



(V1 - 1030hrs) As we approached the intersection of the Bruce Hw~~a~~y and Cape Cleveland Rd, travelling south along the Bruce Hway we were astounded at the densities of Fork-tailed Swifts (FTS) we were witnessing... These densities for V1 continued for about 8kms down the Bruce Hway to just south of the Cromarty Rd intersection to the east. V1 stopped about 50 metres down Cromarty Rd where we could safely get out car and have a good look at this spectacle with our binoculars. At that time, we didn't think much about trying to count them, because we had never experienced such an event. (*Len Ezzy*)

(V2 – 1000hrs) We departed Alligator Creek about 0930hrs and drove slowly to Crocodile Creek Road. We stopped at the bend where one can see the homestead further up the road. We were there only a few minutes when we noticed all the Swifts. Ian, Nina and Mark were there also. It was about 1000hrs. We started heading home to Ayr southbound around 1030hrs. (*John Stewart*)

This meant that V1 and V2 were on the same 8km stretch of Bruce Hway at approximately the same time. It is assumed therefore that the FTS numbers and densities along that stretch of the Bruce Hway could be effectively compared/debated/validated by occupants of both vehicles.

To estimate the numbers or densities we needed to compare observation experiences and estimate how many FTS were visible along that part of the Bruce Hway at that time. We desperately needed to establish a baseline count of FTSs per hectare (100m x 100m) and consequently per 1km² (100 hectares) from ground elevation columning to as high as is humanly possible to see FTSs even with binoculars; probably less than 500metres above ground level; We needed a FTS Density Datum in order to accurately (as possible) estimate fluctuating densities along that 8 km stretch of highway (at least).

Luckily, Peter Valentine (in V3) was in the vicinity of the FTS event. After I made a mobile phone call to Peter, he was able to get to "that" section of the Bruce Hway, still in the relative "height of the aerial activity", where he was able to safely stop his V3 at a roadside infrastructure building's parking area in the 1km² Road Block #8 (On the grid key map [below] road blocks are highlighted yellow and each is circled-numbered). Fortunately, Peter was able to photograph this aerial FTS mass-feeding event.

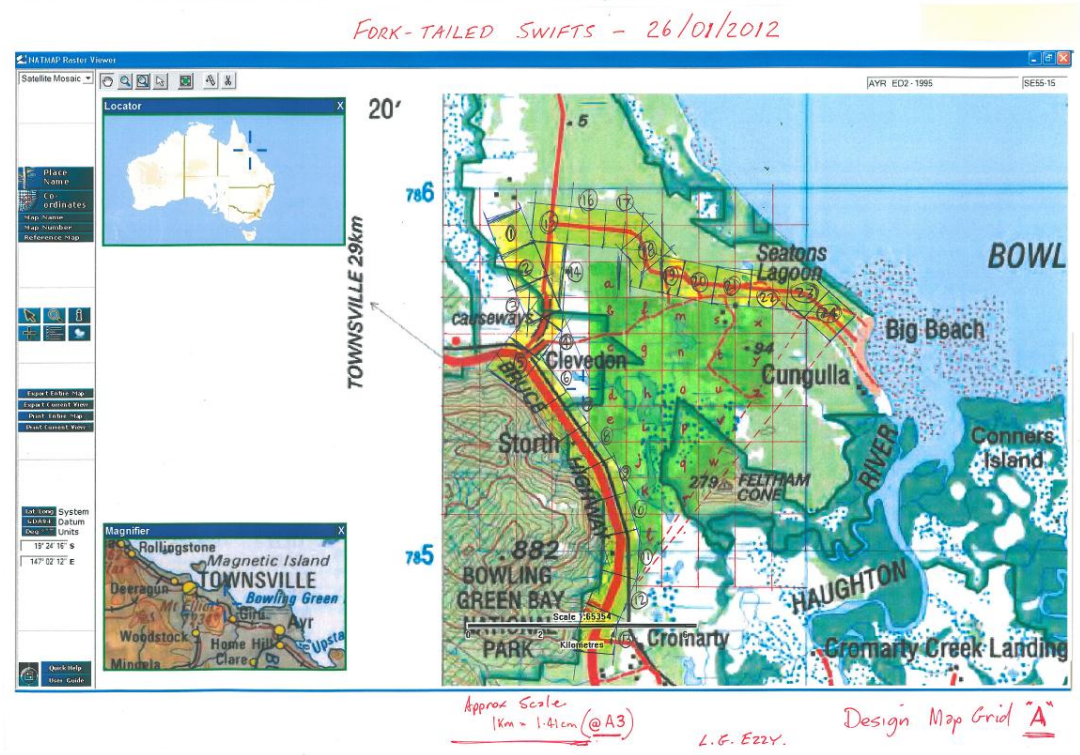
Establishing our Density Datum - From Peter's photos: - Accepting the average wingspan of a FTS as approximately 40cm [mean = 402mm, *n* = 20, M. Tarburton], Peter was then able to measure the coverage of each photo frame at particular zoom settings. From Peter's counts of the number of FTS in flight in each frame, and taking measurements of the coverage of each frame, he was able to derive a relatively accurate and measureable FTS density of 100 – 150 swifts per hectare column (100m X 100m X 500m upwards) and subsequently 10,000 – 15,000 swifts per km² column at the area where he took the photos (Road Block #8). This then became the basis and foundation of establishing our density datum.

The occupants of V1 and V2 were then able to visually assess, compare and measure FTS densities that we experienced at 1030hrs against Peter's photos at Road Block 8. We then adopted our derived datum (compared/debated/validated) of 25,000 swifts per 1km² column as our baseline count for visual comparisons/estimations for all other areas.

How we arrived at the most logical method of counting the FTSs from Australia Day.

On the Design Map-grid "A" (below) I designed 24 x 1km² road blocks; highlighted them yellow and circle-numbered each grid along the roads we traversed where we saw the Swifts. On the same map, I also designed 26 x 1 km² internal grid blocks; highlighted green and alphabetically numbered each internal grid block for where we made the assumption that the birds filled the entire polygon contained within the shape of the active roads we traversed. All relevant 1km² road blocks and internal 1km² grid blocks have been referred to in the attached Appendix C - Excel Spreadsheet (and embedded further below), which addresses each one of those blocks for the different time-frames we were amongst the FTS flock.

See embedded image below (and separate file Appendix B – Design Map-grid "A")




To fully cover this Fork-tailed Swift event, it was agreed that we must have 3 separate counts/estimations for 26 January 2012: -

1. Time frame 1030 - 1100hrs Road blocks Only (V1 and V2)
2. Time Frame 1330 -1400hrs Road blocks Only (V1 only)
3. Time Frame 1330 -1400 Road blocks plus assumed internal grid blocks. (V1 only) (This figure is certainly the maximum count and is based on an assumption that the flock completely covered the interior of the road transects we drove. Count figures have been estimated by an inverse ripple-effect from the established road block counts in that particular time frame.)

Embedded copy of the FTS Count Excel Spreadsheet (Also appendix C – separate file)

| **Fork-tailed Swifts sightings - 30 km SE of Townsville 26/01/2012** | | | | |
|---|---|---|---|---|
| **Estimates of count numbers** | | | | |
| Observers >>>----------> | Vehicle #1 (V1) - Len and Chris Ezzy; Janet Robino<br>Vehicle #2 (V2) - John and Christine Stewart<br>Vehicle #3 (V3) - Peter Valentine | | | |
| **Datum: -** 25,000 per km² @ block #8 @ 1035hrs (250 FTS per ha) | 1.Time-frame 1030 - 1100hrs Road blocks Only | 2.Time-frame 1330 -1400hrs Road blocks Only | 3. Time-frame 1330 -1400 hrs Road blocks plus assumed internal grid blocks | Comments |
| km² road block #Refer to Design Map Grid "A" | Estimated count | Estimated count | Estimated count | |
| 1 | 20000 | | | |
| 2 | 20000 | | | |
| 3 | 10000 | 5000 | 5000 | |
| 4 | 5000 | 5000 | 5000 | |
| 5 | 5000 | 7000 | 7000 | |
| 6 | 20000 | 8000 | 8000 | |
| 7 | 20000 | 8000 | 8000 | |
| 8 DATUM | 25000 | 10000 | 10000 | Datum - 25,000 FTS per |

| | | | | km² @ road block #8 |
|---|---|---|---|---|
| 9 | 25000 | 10000 | 10000 | |
| 10 | 20000 | 10000 | 10000 | |
| 11 | 20000 | 10000 | 10000 | |
| 12 | 15000 | 5000 | 5000 | |
| 13 | 10000 | 2000 | 2000 | |
| 14 | | 5000 | 5000 | |
| 15 | | 5000 | 5000 | |
| 16 | | 8000 | 8000 | |
| 17 | | 7000 | 7000 | |
| 18 | | 5000 | 5000 | |
| 19 | | 4000 | 4000 | |
| 20 | | 4000 | 4000 | |
| 21 | | 3000 | 3000 | |
| 22 | | 2000 | 2000 | |
| 23 | | 1000 | 1000 | |
| 24 | | 1000 | 1000 | |
| | | | | |
| Internal Grid # Assumptions - Inverse ripple-effect from established road block counts | | | | |
| a | | | 6000 | |
| b | | | 4000 | |
| c | | | 4000 | |
| d | | | 7000 | |
| e | | | 8000 | |
| f | | | 4000 | |
| g | | | 4000 | |
| h | | | 6000 | |
| i | | | 6000 | |
| j | | | 8000 | |
| k | | | 8000 | |
| l | | | 8000 | |
| m | | | 4000 | |
| n | | | 3000 | |
| o | | | 4000 | |
| p | | | 5000 | |
| q | | | 3000 | |
| r | | | 5000 | |
| s | | | 4000 | |
| t | | | 3000 | |
| u | | | 2000 | |
| v | | | 4000 | |
| w | | | 2000 | |
| x | | | 2000 | |
| y | | | 1000 | |
| z | | | 1000 | |
| | | | | |
| TOTALs | 215000 | 125000 | 241000 | |

Len Ezzy
(On behalf of the contributing observers)