AFRICAN RAPTOR OBSERVATIONS
User Guide

This guide explains how the African Raptor Observations App,a highly tailored electronic data tool on your phone or device, may be used to convey your field observations of African birds of prey into a central live data observatory for conserving these birds and their habitats, the African Raptor DataBank (ARDB) – see http://www.habitatinfo.com/ardb for more information on this project.

The App may be used anytime, anywhere to gather the full variety of information that people like to record about African raptors: from sightings of birds perched and flying, to nest records, predation records and mortality records with likely causes. The App may be used for formal surveys and fixed point counts, e.g. migration counts, and it may also be used to record information from museum specimens or from the literature (you can position these records to their original location by viewing on the map when online).

HOW YOU REGISTER WITH THE AFRICAN RAPTOR DATABANK (ARDB) AND LOG IN

When you first start the App after installation you may log in if you are an existing ARDB user or you may register by following the links on your phone if you are online. Please use the information pop-ups situated to the right of each field to guide you on the information required.

It is also possible for you to register from a desktop computer at the following link
http://www.habitatinfo.com/ardb-signup-v2/

Once registered, you login by providing your chosen username and password. You only need to do this once for your installation and you must login while you are connected to the internet by Wi-Fi or cellular data connection. After you have logged in the App knows your identity and will populate the observer fields accordingly. Your name will be shown in the top left of the splash screen as the data owner. You don't need to log in again unless you wish to login as another user. To do this follow the 'not you' link on the splash-screen of the App. The App may be used by the same user on up to six devices.

The App is provided for free but you may wish to donate to the project at the following link
http://www.habitatinfo.com/ardb/

If you change your device please ensure you have uploaded all of your observations from the old device before starting with the new installation (if you want to keep the data you have recorded on your old device and transfer these observations and surveys to your new device then follow instructions for backup and restore).

When you register you must agree to the terms of use which detail the ARDB use of your personal and observational data: http://www.habitatinfo.com/ardb_terms_of_use/

Once data are submitted to the ARDB you can access your obs from a desktop computer online:
All of your contributed data will be viewable at http://gis.habitatinfo.com/java/ardb_viewing
(with everybody else's)
We shall be providing an editing interface where contributors may edit their own data. Any observations considered by the ARDB to be sensitive (nest sites, recent vulture sightings) or marked confidential by you will not be visible to other users.

START SCREEN

On the splash screen when you start the App after you have logged in, you will see a series of buttons. The top one is for a one-off sighting, use the circular buttons to start surveys (when you are looking for raptors), and there is a button for managing your data (view on a map, upload, back-up to sd-card).

WHEN TO SUBMIT A ONE-OFF RECORD AND WHEN TO LOG BY SURVEY

If you happen to see an interesting raptor or an interesting behaviour when you are not logging your time spent looking then please use the 'one off incidental obs' button. We welcome these casual observations because we can use them when building distribution models for each species. But they have a major drawback in that these records cannot be used to compare raptor densities across regions or across time periods. For that, we need to know observer effort which can be calculated from the time that you spend looking for raptors or your distance travelled. These sort of data become much more valuable to us so please consider using the survey buttons below whenever you feel you are on a trip or in a situation when you can log your time spent looking for raptors e.g. a field trip, safari or fixed point count. We have designed the app to make it as easy as possible for you to do this (see survey modes). The yellow button with three dots leads you to more survey options.

Please do not click on the car button just because you see a raptor from a car. Only click the car button in order to log your road trip from start to finish. If you start the App when you see a raptor, no matter how you are travelling, please use the one off incidental obs, otherwise it will give us a false reporting rate.

In nearly all circumstances we would prefer you to log your surveys (when you are in a situation looking for birds). However, if you encounter difficulties with data connections just let us know (info@habitatinfo.com). If you don't want us to hold your location and waypoint data you opt out from this when you register or send us an email later asking us not to upload your waypoint information. But we hope you will see the added value in us being able to calculate the reporting rates of raptors in the different habitats and how these may change over time.

SETTING LOCATION NAME

Incidental observations may be organised by location only (swipe to the third screen when entering a record). For instance, if you wish to build a list of the species you see from your home but obviously don't wish to log your time there, then set the location for all these one-off records to 'home' or similar location name. You may then query your records for location = 'home' later on. All location names specified are remembered by your device and may be chosen from a drop-down list from the location field for a record.

All one-off incidental observations (also known as *ad hoc* observations) captured on your device are listed by these location names under 'manage my obs'.

STARTING SURVEYS

When you click a survey button this leads to the green survey screen. The App will assume that the survey is conducted by you and the mode of transport is determined by which button you clicked. You can click START SURVEY as soon as the App obtains your location and get looking right away (START SURVEY turns white when the location is obtained).

SURVEY DESCRIPTIONS

Surveys are handled automatically by your device when you log your time and are not named as such by you but you may edit the descriptive summary for each survey by clicking the large pencil icon. Do this to enter other companions on the trip with you or to specify a different observer altogether. Click on the names of observers to remove them from the survey and click on the green plus sign to add users to the survey. Rather than adding additional names for a large group you can just add a count of the observers if you wish to. This will remove the names from the observer field but whoever is logged on to the app will remain the owner of the survey and records from this survey in the ARDB. The settings for this observer field are inherited by each observation made during the survey. Use the survey description to set weather conditions and to set a location (e.g. a national park or a specific area within the park). This description can also be changed en route if observers or

weather conditions change along the way. Use the notes field to add detail to the survey description and a sound recording for voice recording if typing is impractical, click on the microphone icon situated just to the right of the notes field.

PAUSING A SURVEY

Surveys may be paused e.g. if you are on a road trip and stop for lunch or the shops. If you click the pause button this will stop logging your time and distance until you click START SURVEY again.

SPECIFYING A PROJECT

Observations by survey may be organised by location and also at a higher level by 'project name'. Use project to organise all of your surveys on a specific field trip e.g. Zambia trip 2004.

MANAGING RECORDS…

Under 'manage my obs' you will see two headings to begin with: ad hoc obs contains all the one-off observations with a record count; default project contains all the survey observations with a record count and survey details (number, distance, duration). As you add and define projects for surveys these will appear below the default project.

If you click on ad hoc obs you will be shown your locations with record counts and if you click on any of these you will be shown the one-off records for that location. The records are symbolised with an image of the species if we have one, and a smaller symbol of binoculars which denotes one-off records.

If you click on default project you are presented with subheadings for each location defined and record counts for each location. If you click on one of these location headings you are presented with a list of all the records for that location for that project. Records are symbolised with an image of the species if we have one and a smaller symbol representing survey type (e.g. car).

Your observations from surveys separate to one-off obs and listed first by project and then by location. When you click on a location subheading the list of records made at that location will unfold.

We wish to develop shared projects in the future that multiple users can participate with, such as counts at migratory bottleneck sites at certain times of the year.

VIEWING ON THE MAP

In 'manage my obs' you may view your records and your surveys (transluscent white lines) by clicking the map icon, provided you have an internet connections through Wi-Fi or cellular data. To view your survey routes you must first be in the project level you defined for those surveys. If you haven't defined any projects your survey routes will be visible from the default project level. The background mapping is aerial photography supplied by Bing and ESRI.

UPLOADING TO THE ARDB

When you have collected data and when you are on an internet connection through Wi-Fi or cellular data you may upload the observations, survey descriptions and waypoints all at once by clicking the upload button. This is the middle button of three at the top of the 'manage my obs' page and is symbolised by the line with the up arrow icon. This icon is greyed out when you do not have any new data or when you are offline. The upload process will give you a progress status for the amount of information being uploaded. Uploads normally take up to 10 minutes for several hours in the field but they may take longer on slow connections. Observations and survey descriptions are uploaded first. If you encounter any difficulties with uploading large amounts of waypoints contact us by

sending an email to info@habitatinfo.com . We are able to switch off waypoint uploads for any user from our side.

Records which are not yet uploaded are marked by a small grey circle to the right. When you successfully upload these records the small circle next to those records turns to green.

MAKING A BACKUP ON THE PHONE

We have provided a facility for you to backup your device database to a sd-card on your device if you have one. You can also restore from these backup databases. Use the sd-card icon top right on the 'manage my obs' page for these functions. We have also included a function with this tool to export your observations locally as a csv file. Use this option if you want to email and share certain data with colleagues outside of the ARDB, but we encourage you to make sure all data gets to the ARDB.

EDITING OR CHANGING / DELETING RECORDS

To edit, change, delete a record (before or after upload) go to 'manage my obs', navigate to the observation you wish to change and open. You will be asked if you want to edit uploaded observations; click the pencil icon, make the changes you want, and click save. Alternately, click the bin icon to delete records. The changes to uploaded records will be updated the next time you click the upload button (note the deletion of uploaded records from the phone is not implemented on v1.0.0).

Uploaded records which are changed on the phone are marked with a small orange symbol to the right. These will turn green on the next successful upload. Uploaded records which are deleted on the phone are marked with a small red symbol to the right. These will disappear on next successful upload (not implemented on v 1.0.0)

HOW TO LOG A SIGHTING

If you click the 'one off incidental obs' button, or if you click 'add detailed obs' while conducting a survey you will be led to the fully-functional species recording screens. There are three screens and you may swipe from one to the other. Screen 1 provides the inputs for what you have seen and its location; Screen 2 provides inputs for what the raptor was doing; and Screen 3 provides inputs for refinement of the observation, marking as confidential etc. You can press the little information popups to the right of each input to get further explanation of how to enter information for that field. When you have filled in all the inputs you wish to, please click the big save icon top right to save your record. A message 'success' denotes that you have saved a record successfully to your device for later upload.

SCREEN ONE – WHAT YOU HAVE SEEN

Enter the species at the top of screen 1. Click once on this field and icons for each of the major raptor groups appear, click on one of the icons and all the names of species within this group will appear for you to make your choice e.g. you will find Crowned Eagle under eagles.

Long press the species name field and different options appear for you to navigate to your species seen. These options include listing alphabetically by English or scientific names or by image but these lists will be quite long. You can select another option if you wish. To begin with the default species navigation method will be set to select by group.

When you are in the species lists (no matter which method you use to access them), you can long press on any species that you regularly see to make it a favourite – a little yellow star appears next to it. A few of the options you are offered to navigate to species make use of the favourites list rather than the full species list. Favourites also appear for choice using the 'quick obs' survey method (see

later). You can remove a species from your favourites list in the same way, by clicking and holding on the species name in any of the species listings. Listing by favourites will be useful if you only regularly encounter a few species such as within specific habitats or on islands.

We are in the process of uploading images for each species so we would welcome it if you are able to help us with any specific photographs (please email to info@habitatinfo.com) .

In the future we plan to link this recording app to an e-guide which helps with African raptor i.d. In the interim all novices are urged to get a good field-guide in book or companion form.

BE AS OBJECTIVE AS YOU CAN WITH YOUR RAPTOR IDENTIFICATION

Please use the confidence bar to indicate how confident you are about your species identification. The bar may be adjusted in 10% intervals. It is set to a default of 100% confident. We offer this input to be used by novices who may be learning the challenges of raptor identification but also to experts who may not get a very good sighting of a difficult bird.

You will also find unidentified options at the bottom of most group listings e.g. unidentified buzzard, unidentified small hawk, large falcon etc.

Please use these options for unsure sightings in favour of forcing a sighting into a species choice that would involve a large element of guesswork. We can still use the unidentified options and the low confidence records in calculating reporting rates but we want to be able to screen these out of detailed analysis such as developing distribution models for each species.

AGE, SEX AND COLOUR MORPHS

Even within a species, raptors come in a fascinating array of plumages and there can be marked differences between males and females. You can supply these details on each sighting from your knowledge or by consultation with good field-guides. The information popups for these fields are self-explanatory. But again it is better to leave these fields 'unspecified' or 'undetermined' if you do not feel sure about them.

HOW TO IMPROVE THE GEOGRAPHIC LOCATION

Co-ordinates for your position are taken from the device and populated into the Coords field in decimal degrees. These are obtained as the best from three sources: GPS / Wi-Fi / Cellular network. They are generally accurate to 5-20m once the GPS is active.

Often however a raptor is sighted quite far away from the observer so we offer four methods for calculating and improving this offset:

1. GET COORDS MANUALLY. you can enter coordinates manually if you know them;
2. SELECT ON MAP. you can point to a location using the background mapping if you are on an internet connection. your position will be marked by a red diamond, the birds position may be moved anywhere on the map and will show as a green cross. This method may be used to improve a reference later on when you are editing individual records.
3. GET PERPENDICULAR OFFSET. you can choose a broad perpendicular offset distance on a journey (this method is used in 'quickobs' survey mode).
4. GET COORDS FROM BEARING. or you can point your device at the object to log the bearing and input an offset distance. In this mode you may use your device as a rifle sight to point the crosshairs directly at the bird, after you click save the bearing is recorded and you may enter the offset distance in metres. Additionally, you may click 'take pic' to capture an image of the target (at the moment this is saved to your media store on your device and not uploaded – use the take photo on screen three for saving photos of the subject for upload with the record). This mode uses the device accelerometer and the bearing calculation

works just as effectively when the device is held vertically to line the crosshairs up on the object.

(options 2-4 are only available once your device has a location fix and coordinates appear in the cords field)

When an offset is calculated using any of these methods the coordinates get updated in the input box. But we also keep a record of the device location for the observer position.

Choose between any of these four options by clicking and holding on the coordinates field.
When travelling, always try to obtain the location when you are passing closest to the bird especially when using the broad perpendicular offset distance option.

Whatever method you employ try to give us some indication of resolution in the resolution field. If you see a Fish Eagle several kilometres away across a lake and over a mountain then the resolution for this record ought to be set to fair or coarse (5-25km accuracy). We want to be able to filter out low resolution records when we study which raptors are found within which habitats. The habitats datasets for the whole of Africa now have a resolution as fine as 300m.

SCREEN TWO – WHAT IT WAS DOING (ACTIVITY OR RECORD TYPE)

The second data entry screen of the App is geared to receive information on what the raptor was doing. The app is not yet developed to log continuous observations of behaviour, it collects an instantaneous sample of what the bird was doing. Try to assess and record the activity or behaviour when you first sight the bird, not when it changes behaviour after you have been watching it for a while unless something significant occurs such as nest behaviour or predation behaviour. If you don't have time to log activity or are unsure what it was doing, you can leave the field set to undetermined. Sometimes you might feel you are seeing the same bird on numerous occasions if you or the bird are moving around in and out of sight. If this happens, a rule of thumb might be to only make a new record of what you think might be the same bird after 15 minutes have lapsed since last sighting.

Raptors, as other predators, spend a lot of time not doing much. So the majority of records of live wild sightings will be of birds perched or birds flying. When you press on the activity input field a series of activity icons or record type selections will appear and are symbolised for each behaviour. When you select any one of these activity icons a series of other input fields appear lower down the page, these fields depend on the prime activity that is chosen. So if you choose perched another field appears with a dropdown list of all the perched behaviours that we could think of. Likewise, when you select flying all the different flight types or flight behaviours appear in the dropdown list lower down. For perched birds and nesting birds please fill in what they are perching/nesting on in the substrate field that appears. For most activity types, we offer up a height field. We would be very grateful if you are able to place the bird, especially flying birds, into one of the broad height categories because this will help us assess which species may be most prone to collisions with wind turbines.

AFRICAN RAPTOR ECOLOGY: FOOD AND NEST SITES ARE THE LIMITING FACTORS

When raptor populations are not depressed or limited by human activities, they are generally most often limited by food and nest sites. These are the most important elements of natural raptor ecology to capture. So we have provided a breeding activity category to allow input of nesting details and a food/predation activity category to facilitate the capture of predation, scavenging or hunting behaviour. To capture this valuable information for the ARDB please try to make sure all nest / breeding records, and all observations of raptors with food or prey are logged as such:

NEST SITES & BREEDING RECORDS

All breeding / nesting records will be regarded as sensitive features and held out of public view.
When you log a nest record use the 'status' field to denote the stage of breeding e.g. chicks in the

nest, and use the breeding count field to say how many. Breeding records are more valuable to us than just a sighting of a bird because this represents that the local habitat conditions are right for the species to settle and raise a family. So we will give more weight to these nest records when conducting the distribution modelling analysis.

FOOD & PREDATION RECORDS

For a hunting / predation or food record first of all please use the 'feeding' type field to tell us whether it is an observation of scavenging / seen feeding / hunting etc.. Then you can use the prey field to tell us what the raptor was chasing / killing or eating. When you click the prey field you can choose from a selection of broad categories such as 'reptile' or 'large mammal wild', and when you click on these categories you can also specify a prey species if you know this (you have to type in a species initially but then the app will remember your prey species) or you can choose 'not known'.

If you are lucky enough to witness a raptor hunting / catching prey then you can tell us the number of strikes or attacks that it makes at the prey and the number of captures. This will enable us to calculate hunting success for different African raptors at different prey types.

Finally, some raptors co-operate with other predators when they hunt and this is known to influence hunting success. These may be other raptors, e.g. Redneck Falcons hunting with Gabar Goshawk, or they may be with carnivores e.g. Pale Chanting Goshawks with Honey Badgers or mongooses. You can tell us who they are hunting with using the 'select cooperative species' field. If it is raptors cooperating with another raptor species please try to log both because the database is geared for records by a raptor species.

If we take care in uploading the correct information then, over time, the African Raptor DataBank could amass an extraordinary insight into the ecology of our raptors from this information.

RECORDING MULTIPLE ACTIVITIES

On rare occasions a raptor may be doing two things at once such as bring prey to the nest and we would like to mark these records as both breeding records and predation or food records. You can add more than one prime activity icon to the input dialogue at the top of the page. The fields that appear below will be determined by whichever icon is highlighted above. You can also remove an activity icon from the dialogue by deselecting it in the activity icon list.

FLOCKS / MIGRATION PASSAGE

The migration passage record type is still under development. We plan to provide a more detailed interface with the database through consultation with those doing migration counts. If you observe a large number of raptors in a flock, all with different activity types but not necessarily migrating, then choose the flock (mixed group) icon and you can always include details in the comments / notes field on screen three.

MORTALITY DATA

Use the mortality icon to send us records of raptors you find dead through collisions, poisoning etc. These data are really important especially if you can also fill in the mortality cause field, because they will help establish what are the major threats to raptors. We will develop these interfaces more fully soon so that you can send in details on the different types of mortality. For the moment please include as much detail as possible in the notes field on screen three.

CALLING

Use this activity type for birds you hear but do not see. Put any details in the notes field where you can also use the microphone to record sound.

COMMUNAL ROOSTS

Use this activity type to record sites used by large groups of birds to overnight, e.g. Lesser Kestrels roosting in trees, harriers roosting in grasslands, vultures on pylons. Please include substrate.

COLONIES

Use this activity type to record sites where raptors normally congregate to breed. Use the (breeding) status to signify whether the colony is inactive or maybe at a stage of breeding e.g. occupied nests at colony. Use breeding count to denote the numbers at that stage. Any details into the notes field.

TRAPPED FOR STUDY

Use this activity type to input records of birds that are trapped for research / blood samples / ringing / tagging. Use the individual tag number field on screen three to input sample, ring or tag number.

INJURED BIRDS

Use this activity type for birds found injured. Try to input cause of harm. You can also enter birds in rehab into this category but please state that they are located at a rehab centre clearly in the notes field.

CAPTIVE/MARKET

Use this activity type to report records of the trade in wild birds (legal or illegal) and the holding of birds in captivity by zoos or falconers. Try to include as many details as possible in the notes field and try to upload photographs on screen three.

FEATHER / SIGN

Use this activity icon if you find signs of a known species such as feathers or pellets but do not sight the bird. If the pellets are analysed for prey identification please combine this icon with the predation activity type as described above.

BODY PARTS FOR SALE

Use this activity icon to report body parts for sale, e.g. vulture heads sold at market. Try to include as much detail and photographs if possible on screen three.

MUSEUM SPECIMENS

You can log any African raptor specimens held in museums using this icon. Use the cause field to record how the specimen was obtained. Please include as much detail as possible on the location of the collection in the location field and notes field on screen three. Please record any specimen tag numbers in the individual tag number on screen three. (note, you can also log time spent doing this research in a museum using the survey buttons).

FEEDING STATIONS

Use this activity icon to report sightings of raptors that are attracted by bait to feeding stations such as vulture restaurants. Please include any detail on the food put out for the birds using the prey field.

CAMERA TRAPS

We will be developing another record type for raptors seen and possibly identified on camera types because this is a different type of observer effort. For the moment please use the notes field to

clearly mark these records as such. And use the individual tag number field on screen three if an identification is possible.

SCREEN THREE IS THE PLACE TO FINE-TUNE YOUR RECORDS

MARK AS CONFIDENTIAL

If you change this field from NO to YES by clicking on it once, then this record will be kept out of the public domain and will not be shared with third parties. Use this facility to protect personal locations or for records that you feel are sensitive and will not be filtered out of the public domain on the basis of being a breeding record or vulture record.

CHANGING OBSERVERS

The observer/s field is set to default to the owner who is logged on but it will also inherit the observer settings in the survey description when you are logging a survey. You can click on the names of observers to remove them from the record and click on the green plus sign to add users to the record. Rather than adding additional names for a large group you can just add a count of the observers if you wish to (this facility is probably more useful when setting survey descriptions with large numbers of observers). This will remove the names from the observer field but whoever is logged on to the app will remain the owner of this record in the ARDB.

CHANGING DATE AND TIME ON A RECORD

Click on the 'observed:' field to set the date or the time of the record

SETTING THE LOCATION

Click on 'select new location title' to specify a new location name or to choose from a dropdown list of previously stored location names

RECORDING COMMENTS / NOTES (AND VOICE)

Use the 'notes' field to add all of the details of the observation. If it is impractical to type then you can click on the microphone icon to the right of this field and record your voice message while the background to the microphone is red. Click it again to stop the recording. If your phone takes an external microphone use this to take a sound recording if the bird under observation is calling. All sound recordings are stored in m4a format and uploaded to the ARDB as attachments to the record which may be listened to on desktop computers or tablets (currently these attachments are playing back on Windows and Android devices but not Apple for some reason, there may be third party software available to provide an Apple solution).

UPLOADING PHOTOS OR OTHER MEDIA

Click the 'media: take photo' field to start the device camera and take a photo of the subject. You can save or discard the photo. When you save a photo a thumbnail of the image appears in this field. You may add multiple photos to each record. These are stored in jpg format and uploaded to the ARDB as attachments to the record which may be viewed on desktop computers and other devices.

THE THREE SURVEY RECORDING MODES & ROAD SAFETY

<u>N.B. for road travellers:</u>
This app is designed for use by passengers only, not by drivers. If you are driving please find a safe place to pull off the road and to park the vehicle before entering any observation. You are responsible for complying with all local laws and driving regulations. You must not use the app in any mode, whether the voice obs, quick obs or detailed obs survey modes, whilst driving. Inattention to vehicle operation could cause death or serious injury. You assume all risk of using the app.

This driver alert appears each time a road survey is started and you must tick and agree to the alert before continuing. The alert does not appear for other survey types.

Once the device has a location fix and you click 'START SURVEY' three modes of logging observations while on survey appear:

1. START VOICE OBS

This mode is designed for users to log information quickly when a lot is going on. A large green screen appears with the notice 'tap to add new voice obs'. When you tap anywhere on this large screen voice recording commences while the screen turns red with a microphone symbol in the top right corner. You now have five seconds in which to say what you have seen and the seconds are counted down in reverse order on the screen until they reach zero when recording stops and the device reverts to the input green screen. This will carry on for repeated observations until you press exit (back) on the phone. When you do this you are presented with the three modes again but the survey will not end until you click exit again and confirm.

An advantage of voice obs mode is that the GPS is running and that an accurate location for the record is obtained the moment you tap the green screen. When you view these records in 'manage my obs' they are symbolised by red exclamation marks meaning that further input to the record is expected before upload. These records need to incorporate the info from the voice recording before they are uploaded. To do this click on any records marked with exclamation marks and click on the pencil icon to make changes. You may click on the speaker symbol at any time while editing these records to listen to what you recorded about the observation at the time. Make the necessary changes to species, activity etc and then click the save icon to save the observation ready for upload. When you set the species name for the record the red exclamation symbol disappears and an image of the species appears if we have one available (otherwise a grey no image symbol appears but with the record given the correct species name.

The sound recordings that you make on sighting a bird in voice obs mode are attached to the record as m4a files and are carried up to the ARDB during upload so they may be listened to on the desktop through web interfaces to the database (except for Apple devices as above). These sound recordings are carried in addition to any further sound recordings added from the notes field while editing a record later. So these records may carry more than one sound attachment.

2. START QUICK OBS

This mode is designed for passengers when travelling at speed through areas of high raptor densities and when there is insufficient time for detailed logging of each individual raptor. It may also be used on foot transects when there is insufficient opportunity to log detailed observations. A greatly simplified interface is provided. When you click on 'start quick obs' you are presented with an interface which represents distance categories to the left or right of the road / transect. The first distance category extending from 0-10 is assumed to be immediately on the road. The second distance category is for placing an observation 10-150m from the road either to the left or right. The one after that is 150-250m from the road. When you click on one of these boxes the device automatically calculates an offset to the current location based on the mid-point of the distance range and the perpendicular angle to the left or to the right. At the same time the app asks you for species name of the raptor seen. If you have recorded the species before it will appear in your drop-down list, otherwise you can enter it by clicking species not here? and navigating to the species as described previously. Once you have selected species name, you are prompted for activity in one of three prime activity types: perched, flying or calling (not seen). Finally you are offered a simplified summary screen where you may still make some limited changes to count, age, sex, colour and activity. You can also click the microphone symbol bottom left to add a voice recording (the microphone turns red while recording until you tap it again to stop). When you are happy with the record summary screen click save obs and you are returned to the quick obs capture screen.

The purpose of the quick obs mode is to enable you to add a record in as few steps as possible and to avoid large numbers of records accumulating during a trip which will require post-processing.

3. ADD DETAILED OBS

This is the full observation detail mode as described above. Drivers may use this mode when you are able to pull off the road and log detailed observations e.g. inside national parks, or passengers may use this mode while travelling.