🦢 Australasian Bittern (Matuku) Field App MVP Requirements

1. Project Context & Goals

Field	Value	Rationale / Success Metric
Project Name	Matuku Booming Log MVP (Version 1.0)	Focus on core minimum viable product.
Primary Goal	Create a high-quality portfolio project demonstrating UX and data reliability skills in a conservation context.	**Stakeholder Priority:** Portfolio & Hiring Managers.
Secondary Goal	Eliminate manual data transcription and field logging errors for observers.	**Success Narrative:** Cut down on errors, made data entry easier.
Target User	Volunteers and DOC Staff (Field Observers)	Expected less than a dozen users initially.
Target Devices	Android & iOS Smartphones	Must accommodate self-owned devices.
Target Protocol	Australasian Bittern Triangulation Count (1-Hour Dusk Period)	Based on the uploaded DOC protocols.

2. User Stories (As-Is / To-Be)

Category	Description	Type
AS-IS Pain	As a field observer, I waste time having to manually type the time for every boom train into my Apple Notes.	**Time-Saving**
TO-BE (FR-1.1)	As a field observer, I can log the exact time of the last boom with a single tap, ensuring **HH:MM:SS** accuracy.	**Automation**
AS-IS Pain	As a coordinator, I waste time manually transcribing field notes into the official spreadsheet.	**Workflow**
TO-BE (FR-5.1)	As a field observer, I can export all session data as a structured **CSV file** that is ready for analysis.	**Export**
TO-BE (NFR-1.2)	As a field observer, I need assurance that my night's data is safe, even if I have no connectivity in the wetland.	**Reliability**

3. Functional Requirements (FR)

3.1 Session Setup & Environmental Logging

ID	Requirement	Detail
FR-1.1	**Observer ID Capture**	On first launch, the app must prompt the user to enter their **Observer Name** (Traceability). This value must be stored locally and used for all subsequent sessions.
FR-1.2	**Location & Time Capture**	The app must automatically capture and display the current **GPS Coordinates** and **Date**.
FR-1.3	**Sunset Calculation**	The app must calculate and display the **local sunset time** on the setup screen based on GPS/Date, without requiring internet.
FR-1.4	**Initial Environmental Log**	The app must present mandatory input fields for **Noise Level, Wind Strength, Moon Visibility, Cloud Cover, and Rain** on the Setup Screen.
FR-1.5	**Environmental Guidance**	Input fields must include a **short, plain-language summary** next to the category label (e.g., "Medium Noise: Faraway calls may be missed").
FR-1.6	**Mid-Session Update**	The app must provide a dedicated interface to log an **update to any environmental condition** during the count, capturing the update with an **automated timestamp**.

3.2 Core Boom Logging Flow

ID	Requirement	Detail
FR-2.1	**Count Timer**	The app must initiate and display a **60-minute countdown timer** upon session start.
FR-2.2	**Core Call Recorder**	The app must feature a single, large-target button that, when tapped, instantly logs the **Time of Last Boom (HH:MM:SS)**.
FR-2.3	**Boom Detail Input**	Immediately following FR-2.2, the app must prompt the user to input the three manual variables in this priority order: **1. Boom Count**, **2. Compass Bearing**, **3. Estimated Distance**.
FR-2.4	**Boom Count Input**	Input for **Boom Count** must be a simple **"+" and "–" button** interface (not a full keyboard).
FR-2.5	**Bearing Input**	Input for **Compass Bearing** must use a **visual dial/slider** control (Degrees) instead of relying on the phone's internal compass sensor reading.
FR-2.6	**Individual Tracking**	The logged call must be assigned a unique **Bittern ID** (New or Existing) based on the observer's determination.

3.3 Data Management & Export

ID	Requirement	Detail
FR-3 .1	**Undo Functionality**	The app must include an **"Undo Last Entry"** feature that, when triggered, displays a **confirmation modal** before deleting the record.
FR-3 .2	**Edit Functionality**	The app must allow the user to **edit any logged call** (e.g., correct a typo in the boom count or distance) before export.
FR-3 .3	**Data Export**	All session data, including setup parameters, environmental logs, and individual boom logs, must be exportable as a single **CSV file**.

4. Non-Functional Requirements (NFR)

ID	Requirement	Type	Detail
NFR-1.1	**Data Integrity**	**Reliability**	All observation data must be stored locally on the device (using **SQLite** or equivalent) and must not be reliant on external connectivity for logging.
NFR-1.2	**Offline Mode**	**Reliability**	The app must be fully functional for data logging and calculation (time, sunset, GPS capture) when no internet connection is available.
NFR-2.1	**Color Scheme**	**UX/Usability**	The app must default to an **All-Dark/Night Mode** to preserve night vision. A simple **Day Mode Toggle** must be available.
NFR-2.2	**Haptic Feedback**	**UX/Usability**	The app must provide **haptic feedback** (vibration) upon successful logging of a boom train (FR-2.2) to confirm entry silently.
NFR-3.1	**Validation Warning**	**Data Integrity**	If the user attempts to start the count without completing the mandatory environmental fields, the app must display a **warning modal** that prompts them to complete the missing fields.

5. Data Requirements (Fields for CSV Export)

The final CSV export must include the following column headers.

A. Session/Setup Data (One Row Per Session)

Column Header	Data Type	Notes
Observer_ID	Text	Captured via one-time app prompt.
Session_Date	Date	Auto-captured.
Station_Lat	Decimal	Auto-captured GPS Latitude.
Station_Lon	Decimal	Auto-captured GPS Longitude.
Session_Start_Time	HH:MM:SS	Time the 1-hour count began.
Sunset_Time	HH:MM	Calculated time of local sunset.

B. Environmental Data (Logged at Start and upon Update)

Column Header	Data Type	Notes
Env_Timestamp	HH:MM:SS	Auto-captured time of initial log or mid-session update.
Noise_Level	Text	Low, Medium, or High.
Wind_Strength	Text	Calm, Light, Moderate, or Strong.
Moon_Visibility	Text	Visible or Not Visible.
Cloud_Cover	Text	Clear, Partially Cloudy, or Overcast.
Rain_Presence	Text	No Rain, Light Drizzle, or Rain.

C. Boom Train Data (One Row Per Logged Boom)

Column Header	Data Type	Notes
Call_Timestamp	HH:MM:SS	The time of the last boom (logged via single tap).
Boom_Count	Integer	Number of booms in the train (via +/- buttons).
Compass_Bearing	Integer	Direction in Degrees (via dial).
Est_Distance_M	Integer	Subjective distance estimate (Meters).
Bittern_ID	Text	Unique identifier for the bird (New/Existing).