

# WILDDRONE Operational Checklists

Location: Ol-Pejeta Conservancy

Date: September 2024

Version: 2.1

# Operation planning checklist

Operational Environment	☐ Check area
	□ <u>No-fly zones</u> & <u>NOTAMs</u>
	☐ <b>Topography</b> (Ground obstacles, Airspace visibility)
	☐ Notify third parties
	☐ <b>ATC</b> (planned locations, heights and times)
	☐ Ol Pejeta comms room
=	☐ Weather checks ( <u>UAVForecast</u> )
ng.	☐ <b>Temperature</b> : -10° to 40° C
ΞĘ	☐ <b>Wind</b> (Mini 4P < 10.7 m/s, Mavic 3E < 12 m/s)
ers	Tip: plan the mission so that the wind pushes the drone towards the pilot.
o	☐ <b>Rain</b> : up to a light drizzle (check for dark clouds)
	☐ <b>Visibility</b> : more than 5km
	☐ <b>Kp-index</b> : max 5
>	☐ Pilot has a <b>valid Drone certificate</b>
Crew	☐ Book a <b>pilot assistant</b> for situational awareness (air, ground, wildlife)
S	☐ Ensure <b>operational limits</b>
Regs	☐ 2 km from the pilot,
~	☐ within flight geography.
	☐ Check the drone and equipment
4	☐ Visual inspection (cracked propellers, smooth motors)
ieu	☐ Visual inspection of the transmitter
pr	☐ Ensure that the <b>SD-cards</b> are empty and ready for logging
Equipment	☐ Check batteries (drone, transmitter, VHF)
ш	☐ Test <b>comms channels</b> (VHF 124.3 MHz, ground team comms)
	☐ Ensure to pack everything on the <b>equipment list</b>

# **Pre-Operation checklist**

3rd Parties	<ul><li>☐ Inform ATC of planned locations, heights and times</li><li>☐ Inform Radio Room of planned locations and times</li></ul>
Packing	☐ Go through the packing checklist

# Pre-Flight checklist

	First Flight	
Operational Environment	<ul> <li>Check area</li> <li>No-fly zones &amp; NOTAMs</li> <li>Topography (Ground obstacles, Airspace visibility)</li> <li>Weather checks (UAVForecast)</li> <li>Temperature: -10° to 40° C</li> <li>Wind (Mini 4P &lt; 10.7 m/s, Mavic 3E &lt; 12 m/s)</li> <li>Tip: plan the mission so that the wind pushes the drone towards the pilot.</li> <li>Rain: up to a light drizzle (check for dark clouds)</li> <li>Visibility: more than 5km</li> <li>Kp-index: max 5</li> </ul>	
Safety Briefing	<ul> <li>☐ IMSAFE (Illness, Medication, Stress, Alcohol, Fatigue, Emotion)</li> <li>☐ Crew roles are assigned</li> <li>☐ Crew wearing safety vests</li> <li>☐ Assigned evacuation car seats and free of clutter.</li> <li>☐ Review in-flight checklist, contingency and emergency procedures.</li> </ul>	
Regs	<ul> <li>Ask ATC for permission. (share planned location and height)</li> <li>Approval from Ol Pejeta comms room.</li> </ul>	
	All Flights (incl. first flight)	
	<ul><li>Check GoPro battery and storage, then start recording</li><li>VMC check (Visibility &amp; clouds)</li></ul>	
Equipment	<ul> <li>Insert SD card</li> <li>Inspect Motors, Propellers, Batteries</li> <li>Power on the drone</li> <li>Safety features and fail-safes (RTL, radio audio feedback)         Tip: Ensure 15m vertical separation if more than 1 drone flying simultaneously     </li> <li>Ensure drone is calibrated and has GPS Fix</li> <li>Ensure telemetry link is established (RSSI signal)</li> </ul>	
Pre Take-off	<ul> <li>Check airspace and ground area</li> <li>Test comms channels (VHF 124.3 MHz, ground team comms)</li> <li>Advise crew before take-off, and request go/no-go</li> <li>Arm drone, check motors rotating smoothly</li> </ul>	

☐ Check <b>flight performance</b>
Tip: In windy conditions, check your drone's max speed against the wind to
gauge its power reserve.
☐ Upload <b>waypoint mission</b>
Tip: To abort mission, flip the flight mode switch.
☐ Start <b>recording</b>
☐ Continuously <b>monitor</b> :
☐ Weather
☐ Drone (Battery, RSSI, GPS, altitude, speed, distance,)
☐ Transmitter (Battery)
☐ Air traffic on frequency 124.3 MHz, and FlightRadar24
☐ Before landing
Advise everyone in the operational volume

# Post Flight checklist

☐ After landing:
☐ Stop <b>on-board recording</b>
☐ Stop <b>GoPro recording</b>
☐ Remove the <b>batteries</b>
☐ Visual <b>inspection</b> of the drone and equipment

# **Post Operation checklist**

☐ inform the ATC & Ol Pejeta comms room.
☐ Empty <b>SD cards</b>
☐ Recharge / Storage charge the <b>batteries</b>
☐ <b>Document</b> the flight ( <u>Drone Logbook</u> , KFL flight logs)
☐ Record and report any <b>incidents/accidents</b>

# **Contingency procedures**

**NB:** For every contingency, RPIC calls out: "CONTINGENCY, [contingency name]"

#### C01 - Low battery/high drain

- Sufficient battery to RTH?
  - YES: RTH
  - NO: Slow landing
- Drone close to home?
  - YES: Manual landing
  - NO: RTH

#### **CO2 - High-wind carries UAS**

- Exited the flight geometry?
  - YES: Follow Emergency E03
- Able to RTH?
  - YES: RTH
  - NO: Slow landing

## **CO3** - Aircraft approaching

 Lower drone to a safe altitude (below 30m AGL)

## **CO4 - Wildlife approaching**

- RTH
- Get in the car
- Control drone, move away

## CO5 - UAV warnings or errors

- Able to RTH?
  - YES: RTH
  - NO: Slow landing

## CO6 - C2 link warnings or errors

- Orient antenna towards UAS
- RTH
- Consider driving towards UAS

#### C07 - Poor Weather (Rain, Wind, Visibility)

• RTH

# CO8 - Crew feeling unwell

RTH

## C09 - 3rd party approaching

 Assistant communicates, and avoids distracting the RPIC.

## C10 - Flight geography breached

- UAV under control?
  - YES: RTH
  - NO: Follow Emergency E04

# **Emergency procedures**

NB: For every emergency, RPIC calls out: "EMERGENCY, [emergency name]"

## **E01** - Aircraft dangerously close

- AP shouts "Kill Kill Kill"
- Activate kill switch

## E03 - Operational Vol. Breached

- Activate kill switch
- Communicate with ATC (+254-XXX XXX XXX):
  - Location, bearing, time
  - Remaining flight time, drone size/ type, speed

#### E05 - Bush fire

Call radio room: +254-XXX XXX XXX

#### **E02 - Threatening Wildlife**

- Get in the car ASAP!
- Manually RTH

#### E04 - Loss of control/fly-away

- Try switching flight modes
- Try to regain control, or activate kill switch
- Communicate with ATC (+254-XXX XXX XXX):
  - Location, bearing, time
  - Remaining flight time, drone size/ type, speed

#### **E06** - Crew unfit for flight

- RTH
- Provide first aid
- Call radio room: +254-XXX XXX XXX