

# Off-Airport Landings



Thanks to Tim Wells for developing this presentation and making it available to  
the soaring community

Additional photos by Wally Berry, 2018

# Waverly Hall





# Chilhowee





# Chilhowee (same contest)



# Caesar Creek



# Hobbs



# If you fly cross country, sooner or later, you will land out!

- The results of your first few land outs will have a profound effect on your future in soaring
- Failure – painful and discouraging
- Success – while disappointing, can be encouraging
- Preparation and practice WILL have a profound effect on your chances of success
- Trial and Error approach not recommended





# What is Landing Out?

- Landing somewhere other than where you started
- Landing somewhere other than where you planned to land before the start of the flight



# Where can Land Outs Occur?

- Another airport
- Farmer's field
- Lawn next to a girl's school
- Road
- Lake
- Trees
- Island in a river



# Key Skills Required

- Situational Awareness
  - Landing Options (varies with altitude)
  - Field Selection
- Precision Landings
- Airspeed Control
- Situational Awareness
  - Thinking ahead



# A Test Will Follow This Presentation

- Your first (or next) off field landing!



# Decision Points and Situational Awareness

- Aware of lift conditions around you, ahead, and behind.
  - Is the day getting stronger, weakening, potential storms building?
  - Wind
  - Pay attention to terrain. Know where landable airports and fields are (around you, ahead, AND behind!)



# Decision Points and Situational Awareness

- Rules of thumb:
  - 3000 agl and above
    - Keep
  - 3000 agl down to 2000 agl
    - Have potential landing areas identified (frequently ask yourself “Where would I land if I had to land now?”).
  - 2000 agl down to 1000 agl
    - Have best landing site(s) picked out. Continue to search for lift but stay within gliding range of



# Major Hazards

- Wires
- Slopes
- Fences
- Wires



# Other Hazards

- Rough terrain
- Ditches, roads
- Field too small
- Wind
- Difficult Approach
- Narrow Runway





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# Field Selection

- Altitude High
  - General landable terrain awareness
  - Airports in GPS Database



# Field Selection

- Low Altitude
  - Airport (maybe)
  - Wires
  - Wind/Slope
  - Field Size
  - Surface/crops
  - Approach
  - Ease of retrieve (least important)



# Field Selection

- Wires (invisible from above!)
  - Between two poles
  - Between a pole and trees
  - Between a road and a house
  - Above or along any road
  - Going to any kind of building
  - Anywhere crossing a narrow field



# Field Selection

- Sloped Field
  - Always land up hill, regardless of wind
  - Slope only visible when viewed from 90 degrees to landing direction
  - Landing up hill, carry extra speed, close spoilers in flare
  - Turn 90 degrees at end of rollout so glider won't roll backwards down the hill
  - Landing across a slope not recommended









# Field Selection

- Wind Direction
  - GPS, smoke, lake surface, cloud shadows, waves in tall grass or crops
  - Parallel to narrow valley between two ridges
  - If you are not sure, probably doesn't matter
- Always land into the wind (unless)
  - Light winds, difficult approach down wind end
  - Sloped field



# Field Selection

- Surface/Crops
  - Freshly mowed hayfield best (no hay bales)
  - Low crops (alfalfa) OK
  - Freshly cultivated fields OK, but ground roll will be short. Look out for rocks.
  - Avoid plowed fields if possible
  - Avoid high crops, especially corn (if only option, flare and touch down at top of crop.
  - Avoid pastures (rocks, animals)
  - Discontinuities, wet areas





# Field Selection

- Do not rely on small private airports you have not personally inspected or someone you trust has not recommended
- Assumption: GPS says there is an airport you can reach at 500 feet agl.
- Reality:
  - Airport closed
  - Runway too narrow
  - Runway lights
  - Owner hasn't mowed the field all year
  - GPS says it's there, but I can't find it!



# Outlanding Procedure

- Select several options by 2000 feet agl, radio off
- Select best field by 1200 feet agl
- Gear down,
- Fly full pattern at correct airspeed
- Use downwind to inspect field for rocks, holes, ditches, etc.
- Plan to touch down well into field
- If too high, use reverse pattern (never 360)



# Outlanding Procedure

- NEVER change your mind once committed to the pattern
- If winds greater than 15 kts, expect turbulence
- Touch down with minimum energy
- But, watch out for wind shear
- Stop as quickly as possible



# Outlanding Procedure

- Be flexible
  - Short field? Land on diagonal
  - Rolling surface? If possible land on a crest
  - High trees on approach, but not for the adjacent field, which is unsuitable for landing? Fly around the trees and then line up for your chosen field on a diagonal.



# After Landing

- Move glider clear so others can land
- Relations with landowner
  - If possible, contact landowner
  - Apologies, thanks
  - No matter what, be polite
  - Don't be too quick to offer payment for crop damage, but be agreeable to a reasonable payment
- Dealing with the curious public
  - Don't let them cause further crop damage
- Retrieve
  - Write down lat/long and clear retrieve directions before calling retrieve office!





# Preparation at Home Gliderport

- Precision Landings (touchdown point and stopping point)
- Minimum energy touchdowns
- Landing without reference to altimeter (cover it up)
- Varied IP altitudes
- Experience with different wind conditions



# Preparation when not flying

- While driving, look at fields, wires, crops, approaches, etc.



# Staying in range of landable fields

- Use of GPS & glide computer
- “Airport hopping”
- Just because an airport is in the database.....



# “Flatland” Outlandings

- You can evaluate a field from the air
- The field that protects you is in view
- Getting to it is simple & obvious



# “Mountain” Outlandings

- You must know the individual field
- Scouting may be necessary
- Field may not be visible until nearby
- Path to the field may not be direct or obvious



# Problem areas

- Pastures
- Clear Cuts
- Roads
- Parks & recreational fields
- Golf courses
- Parking lots



# “Crashable” areas

- Trees
- Water
- Sagebrush



# “Don’t Do It” areas

- Gravel pit
- Graveyard
- Orchard
- Grape Vineyard
- Inhabited area





# Minimum safe field size – it depends

- Approaches, obstacles
- Altitude
- Wind
- Glider
- Surface
- Pilot's skill & precision
- Ground loop, if necessary (stick forward)



# Evaluating size

- Narrow looks long – long looks narrow
- Wide looks short – short looks wide
- Must have some idea about local fields
- Relative size of trees, power poles, buildings, etc.



# Low Saves

- Don't believe all the stories about 200 foot saves
- Radio off
- Don't circle unless you can afford to lose 200 feet
- Low thermaling: coordinated turns plus 5-10 kts extra airspeed
- Steeper banks better than shallow
- Head out of the cockpit
- Wait for a thermal on a ridge with good field in reach
- Low experience, currency? Give it up at 800 feet



# Low Saves (with an engine)

- Have a good field as a backup to the engine
- What altitude to start the engine?
  - When did the engine last run?
  - Good field available?
  - Current in glider?
- If the engine does not start, **FLY THE GLIDER!**



# Survival issues

- Mobile phone
- ELT use
- Radio
  - Other gliders 123.30
  - Airliners 121.50
- Survival kit



# Summary

- Landouts are more risky than landing at the home airport, but with planning and preparation, they need not be excessively so
- Prepare, practice, plan, discipline
- Getting home always beats almost winning the day, but landing five miles short.



Good Luck!  
Fly Safe!



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