

> To Be A Safe Glider Pilot To Reduce Stress & Anxiety To Have Freedom to Fly X-Country You must have the skill and confidence to land off-field

What is different about an off-field landing?



No Altimeter Reference

No Wind Direction Devices

Never Sure What You Are Getting Into

The Workload is Higher

What is different about an off-field landing?



You Will Experience Stress

Mistakes Will be Accentuated

After You Land the Adventure Begins

When Do You Make the Decision to Land Off-Field?

Before

I ake Off

What Factors Influence the Decision When and Where to Land?



Conditions Altitude Terrain

Places <u>Not</u> To Land

School Yards / Athletic Fields **Golf Courses / Parks** Roads or Highways Public Parking Areas > Military Airports Inside Restricted Airspace

If You Land In **Any Of These** Places, You Will Have A Lot Of Explaining To Do



And this just in...

A glider, with no motor, is reported to have landed on a local soccer field, narrowly missing hundreds of children.

Stay tuned for film at eleven and our special report – **Are the Skies Safe?**

Trees Are a Bad Place to Land

The glider will always be seriously damaged or totaled...

You have a substantial chance of serious injury or worse...

Given No Other Alternatives...

Water Is Not a Particularly Dangerous Place to Land



Many successful water landings have been made with no structural damage to the glider Given No Other Alternatives...

Water Is Not a Particularly Dangerous Place to Land



Extend Landing Gear
 Land Near Shore
 Touchdown Slow
 Touchdown Tail First
 Composites Gliders Float
 Metal Gliders Do Not Float



Location: Dillingham Field, Oahu, Hawaii

Conditions: Paradise as usual... Oh, did I mention massive sink



Decision Altitudes

Below 3000' agl – Be in an area with landing possibilities 2000' agi – Select several fields with potential 2000'- 1500' agi - Choose a field(s) / Search for thermals 1500'- 1200' agi - Position the upwind leg of chosen field 1000' agl – Be established in the upwind leg 800'- 600' agi – Established on downwind leg

Farmers generally don't cultivate small fields because they can't efficiently use their equipment, and it's not economical to grow crops in small areas

How Long a Field **Do You Need?** Many fields in this area are 1500'+ With an unobstructed approach 1000' is workable

A glider typically rolls less than 500' during a normal landing

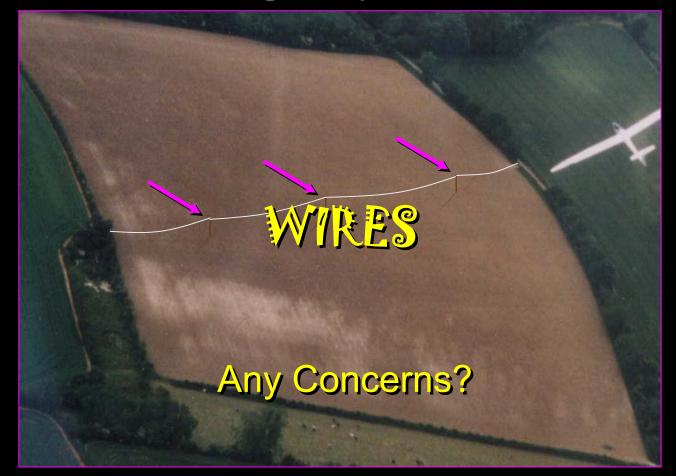
2500' agl - Overview of the Landscape



1500' agl - Chosen Landing Field



1000' agl - Upwind View



Field Color

Color Offers Important Clues About a Field

Crop Colors
 Dirt Colors
 Uneven Colors

You Gotta Know Your Crops

Develop an Awareness **Of Types of** Crops, Colors and the Growing Season

"Knee High By 4th of July"

It's obviously not the of July

The Color Of Dirt Understand the Difference Between A Plowed Field And A Cultivated Field

Plowed = Rough
Cultivated = Smooth

"Land in the Dirt and You Won't Get Hurt"

Take Note of Uneven Colors

Uneven colors usually indicate drainage, low spots, ditches, or runoffs, associated with water flow

"If you can see it from the air, it will look bad from the ground"

Biological Hazards

Cattle are curious Sheep are crazy Herd animals live in pastures – not cultivated fields

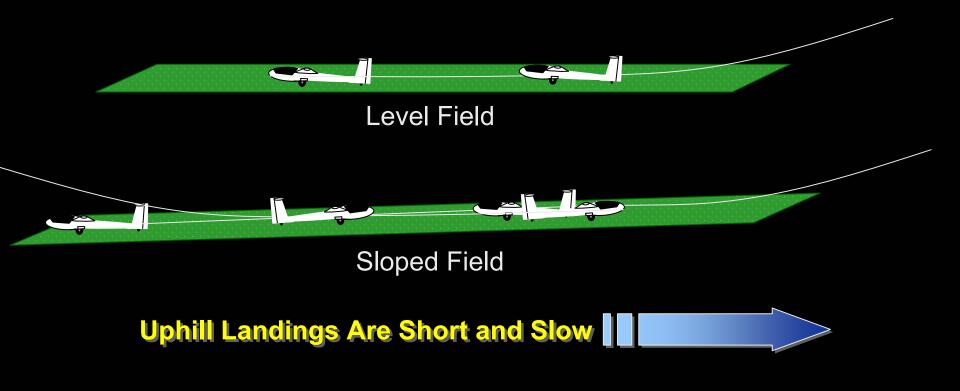
> One cow is a problem!

Off-Field Landing Checklist

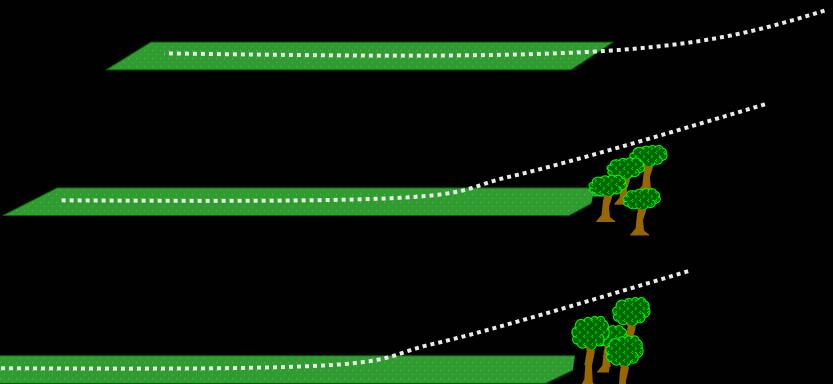
Slope Length Obstructions Wind WIRES

SLOPE

Always Land Uphill – Regardless of Wind



LENGTH



Consider Field Shape



The Natural Tendency is to Select Fields That Look Like a Runway

Consider Diagonals

Maximize the Length of a Square

Consider Odd Shapes

It is No Big Deal to Land on a Curved Path

OBSTRUCTIONS

> Ditches / Drainage Rocks / Bushes / Hay Bales > Fences Irrigation Pipes > Holes > Livestock

WIND DIRECTION

Frees – Leaves - Crops Ponds – Lakes – Water Cloud Shadows (Maybe) Smoke Flags / Laundry The Last Direction Available GPS/Flight Computer



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You Must Look for Poles or Shadows

Assume Every Structure Has Wires

> Wires Will Run Along Roads



Altical Judgment You Will Have No Reference Elevation for Patiern Entry

That-Looks-About-Right

You Can See...

Cow Legs @ 800' agl

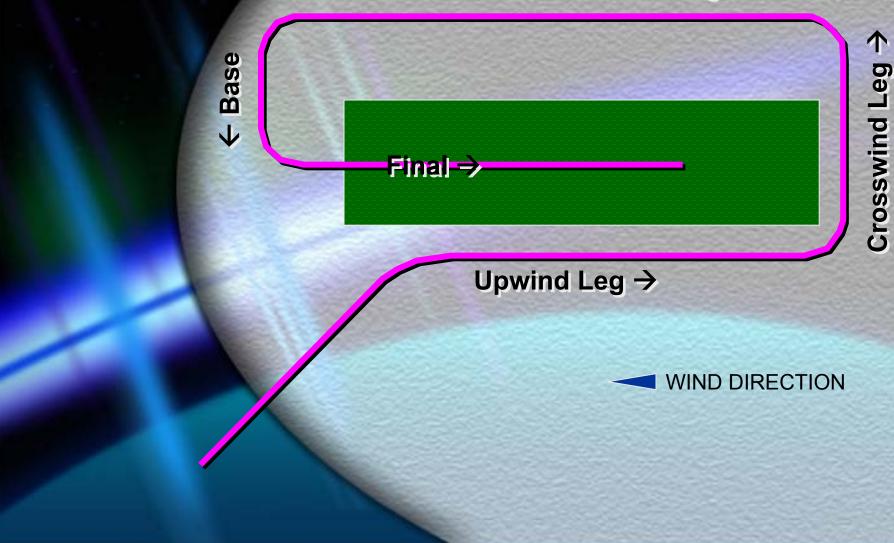


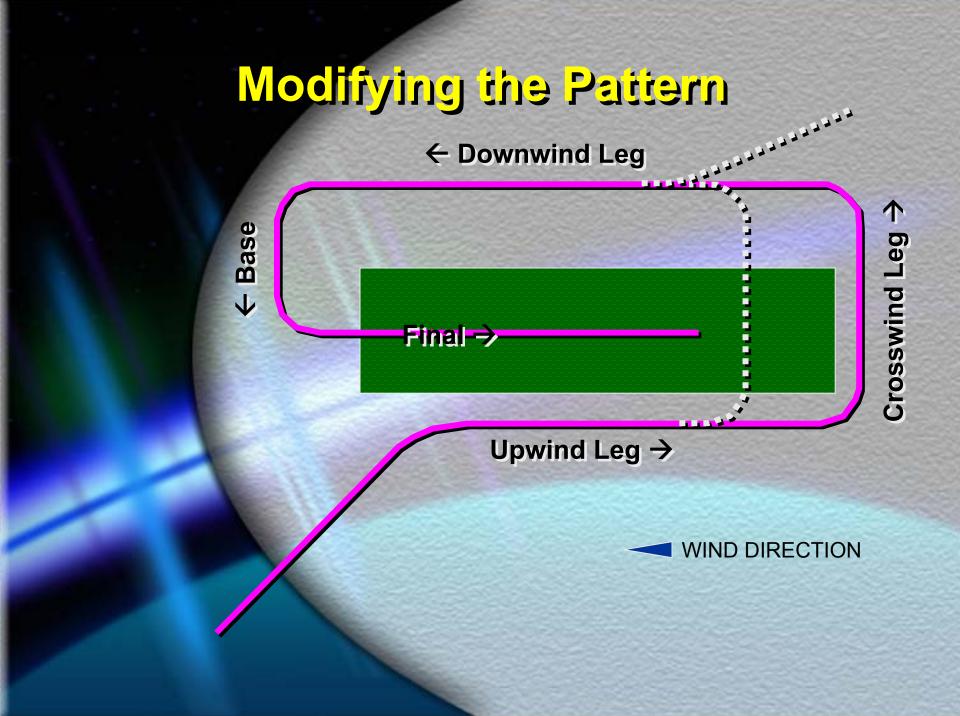
Sheep Legs @ 500' agl



The Ideal Off-Field Landing Pattern

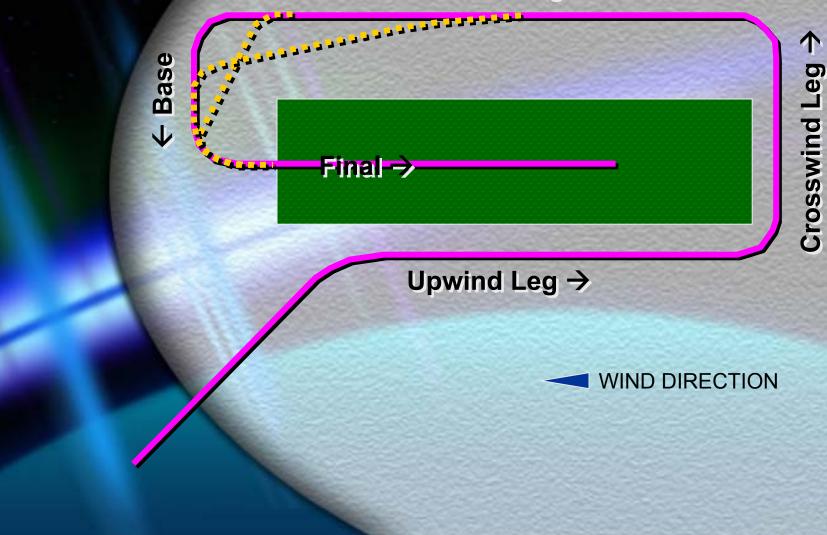
← Downwind Leg





Avoid a Short Base Leg

← Downwind Leg



A Good Base is the Key To Setting-Up a Good Final Approach

← Downwind Leg

Base

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Upwind Leg →



Crosswind Leg →

Most Off-Field Landing Accidents Are Over-Shoots

Your Natural Tendency Will Be To Approach -> Too Close > Too High > Too Fast

Don't Run Through a Fence

Fences Kill Glider Pilots

Ground loop before running into a fence head-on

Fly Normal Pattern Speed + 1/2 Wind Speed

> - Resist the Urge to Fly Slower

- Don't Let Stress Make You Fly Faster



The Key Is To Bleed **Off Airspeed On** 6 The Second Half Of Final And In **The Flare**

8

AIRSPEED

Knots x 10

13

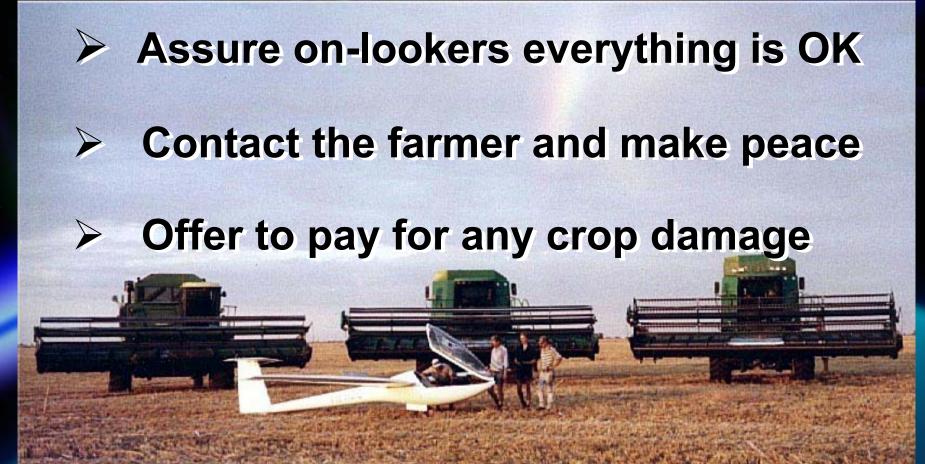


For the Five Seconds it Takes to Make a Turn - FOCUS on Coordinated Flight

Touchdown With Minimum Energy

From From Touchdown
Minimize Roll-Out
Brake & Stop Immediately

Post Landing Activities



Post Landing Activities

Thank him for having a field in exactly the right place to save your bacon

Take pictures of the kids in the glider

Offer to take the farmer for a glider ride back at the club

Post Landing Activities

Secure the glider

Notify your crew – get really, really good directions

Determine the best way to remove glider with the least field damage

Relax, have fun with the local populace

Practice - Practice - Practice Practice - Practice - Practice Practice - Practice - Practice

Every Landing at Homebase Should Be a Minimum Energy Spot Landing During your normal flying at PGC... If you do not touchdown on your intended landing spot 95% of the time... You are probably not ready for an off-field landing



And Spot Landing Skills

During your everyday driving continually check out fields – crops – and conditions

Play the game -Where Would I Land Now?

Seriously Consider Taking an Off-field Landing Course in a Motorglider

Find an instructor who will take you for a "strange airport" landing session

If You Want to Become **A Well-Rounded Glider** Pilot.... You Must Fly at **Locations Other Than** Homebase



Philadelphia Glider Council Ground School