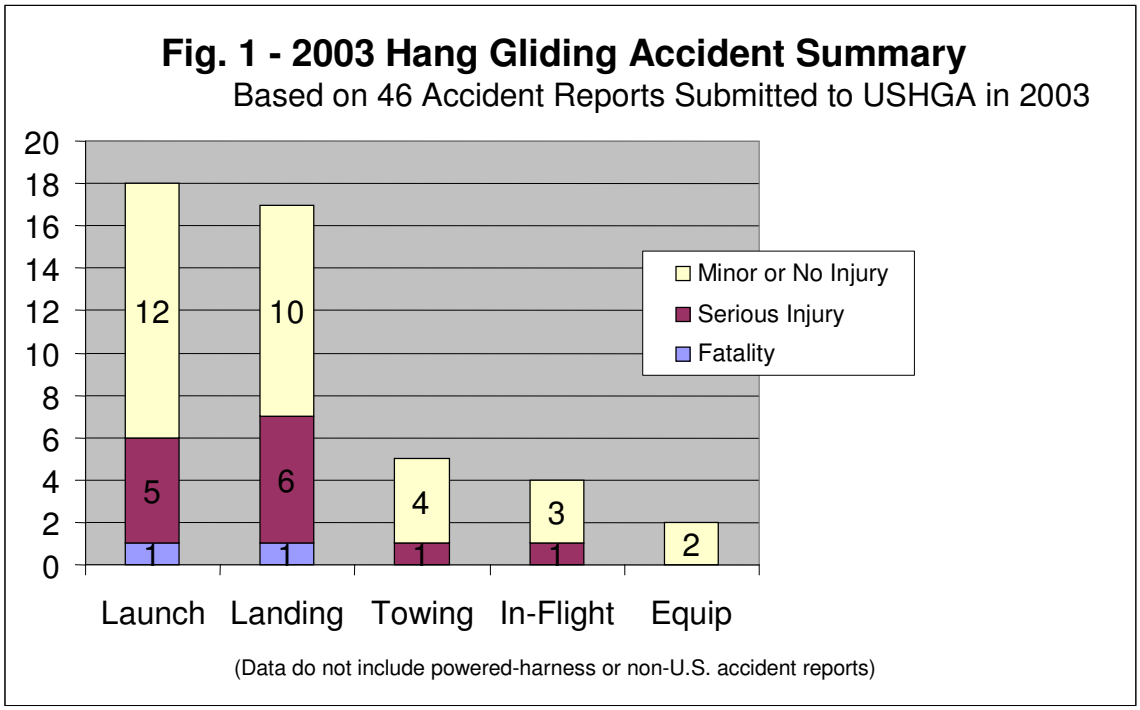
2003 Hang Gliding Accident Summary

By Tom Johns

The USHGA received online or paper accident reports describing 46 non-powered hang gliding accidents including 13 serious injuries and two fatalities in the US in 2003. To those who submitted reports, thank you for taking the time. Your efforts will help us all to fly more safely. To those uncertain about whether an accident report should be submitted, please don't hesitate to report any event you may be involved in or witness where someone is injured, or could have been injured, while participating in or observing the sport of hang gliding. If you're not sure whether somebody else submitted a report, please take the initiative. When USHGA receives duplicate reports on the same event, it's easy to create one entry for the accident summary. When no report is received, there is no entry and any hard-learned lessons (for which the accident pilot may have paid steeply) are lost to the rest of us. Paper reports are acceptable, but the best method is to fill in the online accident report form. It's easy! Go to the USHGA Web site (www.ushga.org) and click on "Forms."

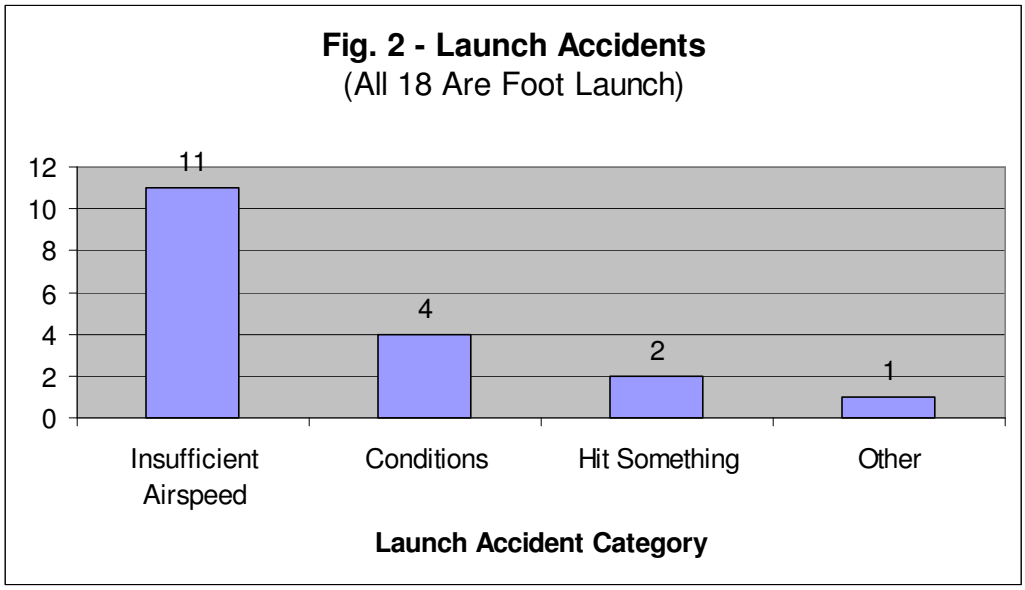
The Accidents

As usual, the most popular way to crunch aluminum, wound the body, and bruise the ego is during the takeoff and landing process (see Figure 1). Three-quarters of all reported accidents (35 of the 46 events in 2003), 85% of the serious injuries (11 of 13), and both of the fatalities were the result of takeoff or landing events. Towing problems showed up in third place, followed by in-flight events (collisions, tumbles) and finally equipment problems (incorrect pre-flight/assembly).



Takeoff Accidents

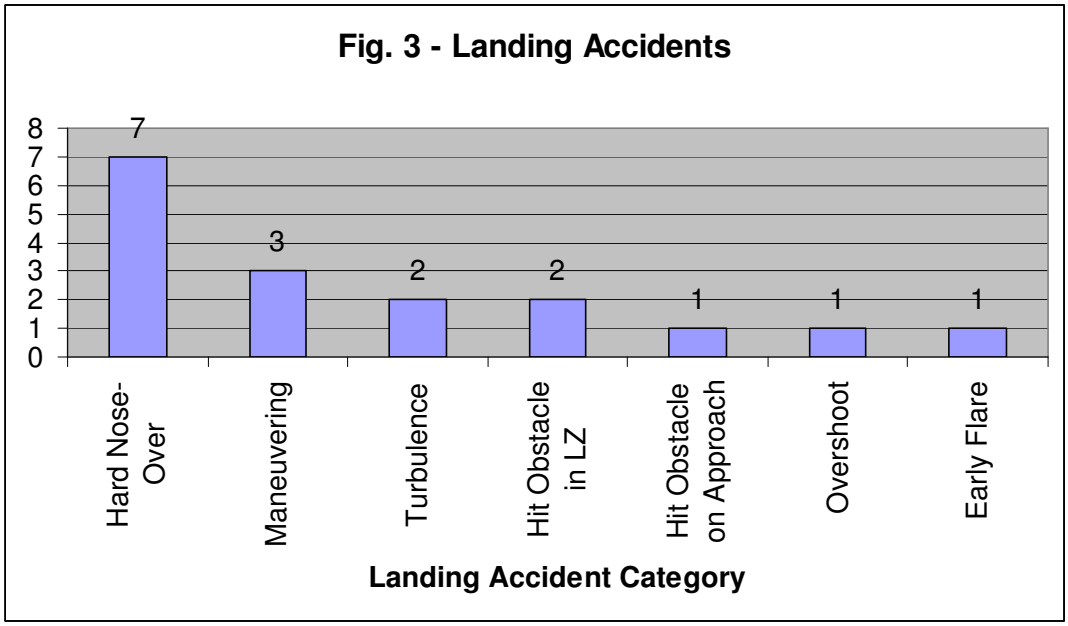
All accidents in this category were traditional foot-launch takeoffs. The majority of foot-launch takeoff accidents (11 of 18, or 61% in the 2003 reports) are attributed to insufficient airspeed (see Figure 3). Causes for the shortage of airspeed include slow, weak or brief launch run followed by pushing out, and failure to control pitch attitude and angle-of-attack during the launch run. Launch conditions, including high density altitude, crosswind, and turbulent/gusty winds were identified as the second leading cause of takeoff accidents (4 of 18, or 22%) and were a likely contributor to several of the accidents in the insufficient airspeed category. Two launch accidents resulted from collision during or immediately after takeoff (an observer in one case, and a tree in the other). One accident occurred when the pilot's shoulder dislocated while attempting to correct for turbulence-induced roll during the launch run.



This looks like a high-leverage area where improved training and proficiency could result in a reduced number of accidents and injuries, since foot-launch takeoff accidents had the highest rate of occurrence, and the second highest number of serious or fatal injuries in 2003. With insufficient airspeed as a leading cause, our instructor and observer community, as well as individual pilots, needs to re-emphasize the importance of pitch attitude, angle-of-attack and airspeed control during the launch run. There is an ever-present desire on the part of newer pilots to rush past the training hill days in order to experience the magic of soaring. While we all understand this eagerness, it must also be recognized that scraping oneself out of the sagebrush will severely diminish the aforementioned experience, and that proficiency in the basic skills of launching is therefore a necessary means by which to achieve the magic of flight.

Landing accidents

The reported causes of landing accidents are more broadly distributed. The most common reported landing event is the ubiquitous nose-over, or whack (See Figure 3), in which the base tube stops abruptly on contact with the ground, the glider pitches down sharply, and the pilot's remaining forward momentum is arrested by the ground and/or glider. We all witness this scene repeated with some regularity at our local flying sites, and while it typically results in nothing worse than minor glider damage and bruised egos, it accounts for four serious injuries in the 2003 reports and is therefore worthy of some scrutiny. Safety wheels can be effective in many cases; however at least one of the serious injury nose-over accidents in 2003 occurred despite the use of wheels. Even the large-diameter training wheels can be stopped abruptly, depending on terrain and vegetation. It has been my experience that the pilots who repeatedly encounter landing whacks (and are thus more greatly exposed to hard nose-over injury accidents) tend to be pilots who round out too low, or are inconsistent in round-out height. This is another area of potentially significant benefit from improvements in pilot training and proficiency. Several of the landing whacks reported in 2003 occurred when landing in somewhat more challenging terrain or conditions, including downhill, downwind, or tall grass. One of the landing whacks occurred when the unsuspecting pilot inadvertently stepped on his VG cord after an otherwise successful landing. Park the string if you plan to land VG-on.



The second category of landing accidents involved inadvertent contact with the ground while maneuvering to land. All three of the reported events in this category involved experienced pilots on high performance gliders. Modern high performance gliders can accelerate quickly and can rapidly develop high sink rates during un-coordinated turns. Ground contact when the glider is steeply banked and with a high sink rate poses a significant risk of injury. Pilot proficiency on the equipment, and pilot transition to more advanced equipment are important issues here.

Two accidents occurred as a result of impacting an obstacle in the LZ. One of the reports included an excerpt from a previous accident description which I reprint here: "[the accident pilot] executed a brilliant spot landing. Why he chose Paul for his spot remains a mystery." The surest way to hit the obstacle is to stare at it while on approach.

One landing accident occurred as a result of impacting an obstacle while on approach. This is another scenario with extremely high injury potential as even minor contact of one wing with an obstruction such as a tree can result in loss of airspeed and rapid yaw, pitch and roll with insufficient altitude for recovery. Training, practice, proficiency, and a conscious decision to fly a conservative approach pattern are required. Always opt for a safe landing in a less convenient alternate rather than trying to squeak back to the regular LZ just over the treetops.

Towing accidents

There were five towing accidents reported in 2003, three aerotow, and two stationary winch/scooter. The aerotow accidents included an early release from the cart, where the glider settled and contacted the ground (no wheels), one event involving a tandem release at 30 feet in crosswind conditions with insufficient altitude/airspeed to execute a safe landing, and one unusual (hopefully) accident where the glider reportedly pitched over backwards when the tow line force was suddenly released while the glider was high above the tug. The pilot was able to recover normal flying attitude and execute a safe landing. None of the aerotow accidents resulted in serious injury. One scooter tow training accident resulted in minor injury, and one stationary winch accident occurred when the pilot was unable to release the towline due to incorrect attachment, and landed downwind.

In-Flight accidents

Three successful parachute deployments were reported, one as the result of an in-flight collision with a sailplane, and the other two because of in-flight tumbles (one tumble resulted from turbulence and the other was pilot-induced during attempted spin entry). The fourth reported accident in the in-flight category was a collision with a tower near launch, resulting in serious injury.

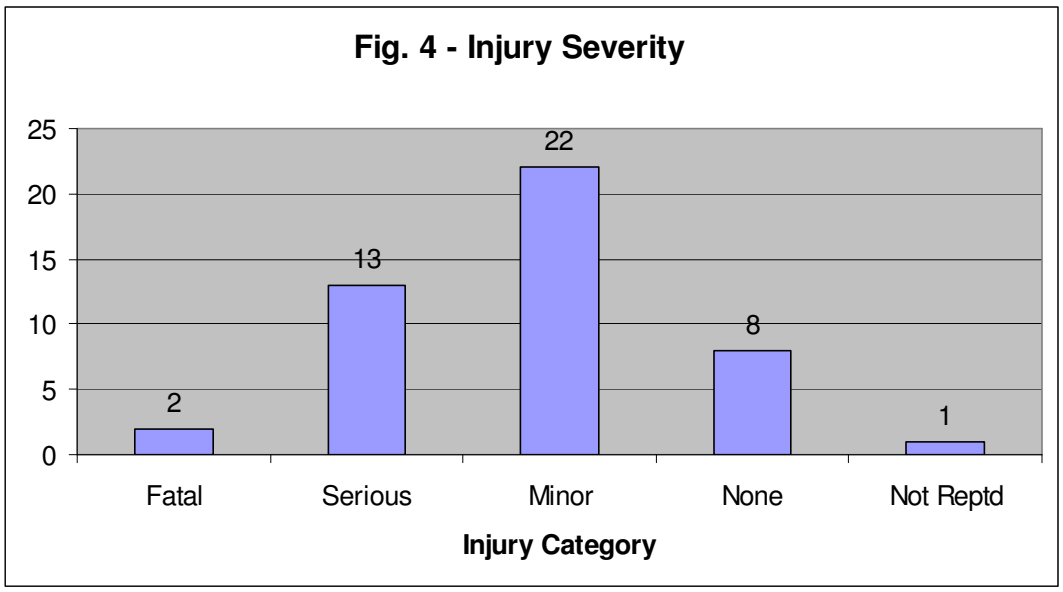
Equipment problems

There were two reports involving equipment problems. Neither event resulted in serious injury, but both pointed out the importance of a thorough pre-flight inspection. One report involved a spoiler lever not properly secured on a rigid wing glider, and one involved rolled-under Mylar in the wing leading edges. Both problems adversely affected controllability.

Injury and fatality statistics

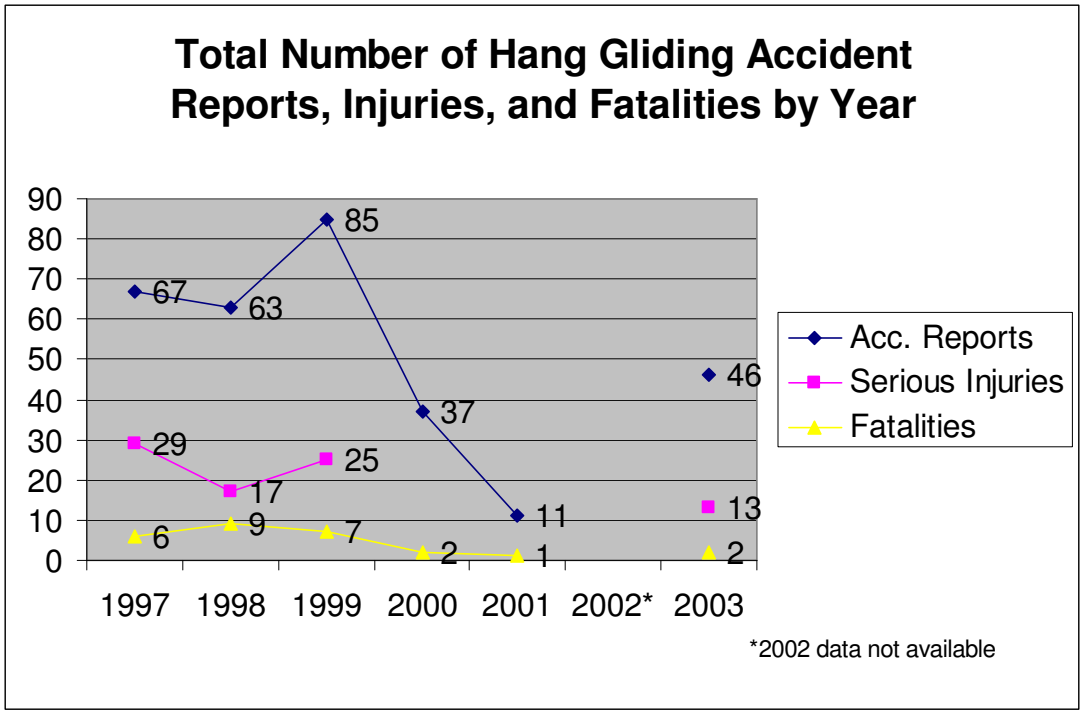
The 2003 accident reports included two fatalities, and 13 injuries classified as "serious" (following NTSB Part 830 injury severity definition—see below). The remaining 31 events involved minor or no injury, or the injury severity was unreported (see Figure 4).

The USHGA encourages reporting of any and all events where the potential for injury existed, in order to develop a more complete picture of accident trends for accident prevention efforts. However, we need to emphasize the importance of complete reporting of accidents where serious injury occurs in order to have a complete statistical record. If you are aware of an accident involving a serious injury or fatality, and are uncertain whether it was reported, please submit a report with whatever factual information is available (e.g. date, time, location, extent of injuries, etc). When using the online form (it's a rather lengthy questionnaire) simply ignore the fields for which you have no information. Serious injury can be defined as broken bones, internal organ damage, or injuries requiring overnight hospital stay (paraphrasing NTSB Part 830).



Historical comparison

The number of hang gliding accident reports received by USHGA declined sharply after 1999, probably due, at least in part, to a lack of emphasis on data collection and accident analysis. Reducing the number of accidents will benefit everyone associated with the sport. Reviewing accident information and publishing accident studies can help in the accident prevention efforts, but quality accident analysis relies on quality data collection. Let's all fly safely this season, but when accidents occur, please ensure they are reported.



The safety of the sport has improved dramatically since its inception nearly 40 years ago. If we had accurate accident rate information (e.g. the number of accidents per 100,000 flights) it would probably indicate a fairly stable current rate trend. Further improvements in the accident rate require a certain amount of effort, such as more thorough training, and a higher level of pilot skill and proficiency. Improvements are achievable, and the efforts are certainly worthwhile. Regular review of accidents and publication of accident reports can help us achieve these goals.