WHEN TAKEN TOGETHER, takeoffs and landings do not make up a large percentage of the total flight time, but combined they are the most accident prone of any other groups. Between the two—takeoffs and landings—the landings are the most hazardous. Figure 6.1 illustrates a clear Killing Zone of fatal landing accidents where inexperience kills. These numbers include accidents on a visual flight rules (VFR) approach to land, full-stop landings, stop-and-go landings, touch-and-go landings, and go-arounds (rejected landings) among all student, sport, recreational, and private pilots with fewer than 1000 flight hours from 2000 through 2011. There are more private pilots than any other category, so it stands to reason that private pilots would have the most accidents. In this case, there were 135 private pilots (with fewer than 1000 total flight hours) who lost their lives in an accident involving approach, landing, or a rejected landing attempt. Sixty-seven private pilots lost their lives in this category who had more than 1000 flight hours ranging up to over 10,000 flight hours. Ten student pilots, three sport pilots, and two recreational pilots also were killed. Why would landings be more dangerous than takeoffs? There could be several reasons. Takeoffs start slowly and accelerate because of engine power. Landings already have speed and can accelerate because of gravity. Takeoffs are normally traveling away from the ground. Landings are normally traveling toward the ground. One major difference is that takeoffs occur at the beginning of the flight when the pilot is more rested. Landings occur at the end of the flight when fatigue, boredom, and complacency have set in. The physical act of landing may not be more hazardous than the act of takeoff, but it takes place when the pilot is the least rested and possibly the least alert.
Figure 6.1  Fatal approach, landing and go-around accidents student, sport, recreational and private pilots, 2000 to 2011.

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The Private Pilot was conducting a touch-and-go landing. After touchdown, the flaps were retracted and power was added for the go-around. The engine hesitated, then provided normal power. As the speed of the airplane increased, it began veering left. Right rudder was applied without result. The pilot then cut power as the airplane overran the left side of the runway, continued down an embankment, struck trees, and nosed over. Post accident examination of the airplane revealed no anomalies with the engine and continuity of the flight controls. There was evidence of side loading on the outboard side of the right main tire.

Probable Cause:

The pilot's improper use of the rudder that resulted in a loss of directional control.

Figures 6.2A through 6.2D are all from this accident. The pilot was unhurt, but the airplane was substantially damaged. Figure 6.2A shows the airplane tail upside down and sticking up into the air. The runway is just beyond the horizon in the photo. When the airplane “veered” left and overran the left side of the runway, it came over that hill and down into the ditch. Figure 6.2B also shows the airplane as
Figure 6.2A  After departing the left side of the runway, the airplane rolled down a hill and into the ravine.

Figure 6.2B  The airplane rolled down the hill from right to left in this photo.
it came to rest. The runway is off to the right of the photograph. The airplane came from the right, down the embankment, and finally the nose wheel dropped into the ravine and the momentum took the tail on over. It’s amazing how much trouble you can get into when you don’t do things right.

Look carefully at Figure 6.2C. This photograph was taken back up on the runway. You can see the skid marks left by the right main wheel. The report said, “there was evidence of side loading on the outboard side of the right main tire.” The skid marks show the angle at which the airplane departed the left side of the runway. The embankment that the airplane ultimately rolled down is beyond the grass and short of the far trees. Notice that the skid marks cross the taxiway exit lines.

Figure 6.2C  The bold white strip that crosses left to right in the photo is the edge of the runway. The right main tire’s skid marks show where the airplane went out of control just past a taxiway intersection.