straightforward and benign, but in poor weather, it has many hazards, most particularly cliffs and crevasses that mark its perimeter. The Park spent over \$150,000 on mountain related search, rescue and recovery in 1999. Many of these costs were related to extensive searches for lost mountaineers on the route to Camp Muir, the mountain's

most popular high camp.

In Olympic National Park, there was one incident that was mountain related. A hiker (31) from the Netherlands was found after an extensive search. He was located at the base of a very steep snow slope a quarter mile east of the Glacier Meadows Ranger station. Footprints indicated that he was going to climb to the ridge to gain a photo opportunity. But the terrain was technical—a steep chute filled with snow. As this search and recovery cost \$56,000, it is mentioned here because the media often refer to incidents like this as "climbing" accidents.)

## AVALANCHE, POOR POSITION – KNOWN AVALANCHE HAZARD Wyoming, Grand Teton National Park, Mount Teewinot

On May 23 at 1300, Jackson climber Phillip Jones arrived at the Jenny Lake Ranger Station to report that his climbing partner, Irene McManus, had been swept 2,000 feet down the East Face of Mount Teewinot by an avalanche. According to Jones, McManus sustained serious injuries in the fall. Jones said he descended to McManus' position at the toe of the avalanche, removed her from the debris pile, and placed her on a rock on the north side of the slide path. She was reported to be conscious but in significant pain, with head trauma and possible fractures to the back, shoulder and ribs.

As rescue coordinator for the day, I requested that the park contract helicopter and pilot Ken Johnson be dispatched to the Lupine Meadows Rescue Cache. The helicopter arrived at 1340. With Ranger Renny Jackson serving as spotter, Randy Benham, George Montopoli, Leo Larson, Chris Harder, Jack McConnell, and Dave Bywater were inserted via short haul directly to the scene. Harder was positioned on the northwest side of the Apex to serve as avalanche guard, as additional avalanche activity continued throughout the afternoon.

Following full patient stabilization, McManus was immobilized on a backboard inside a litter and short hauled directly to Lupine Meadows Heli base with Ranger Montopoli attending. McManus was transferred to a Teton County Ambulance and taken to St. John's Hospital where she was admitted with multiple trauma.

Due to ongoing, hazardous avalanche activity, all field rescue personnel were then extracted from the scene via helicopter short haul.

## Analysis

According to Phillip Jones, he and McManus had spent the night of May 22 on the top of the Apex, with plans to climb the East Face route the following morning. Jones said they observed avalanche activity on the face during the afternoon of the 22nd, so they planned an early morning climb.

They left their campsite around 0400 on the 23rd and climbed the East Face route as planned. Jones described the conditions as good, with firm snow. They wore crampons to the summit, arriving around 0910. After about 45 minutes to an hour, they began their descent. Jones said they were just clearing

the lower end of the narrows when he observed a large volume of wet snow and water release from above. He was about 30 to 40 yards below McManus and out of the slide track. He watched McManus plant her ice ax, but the fast moving, airborne slide knocked her off her feet. Jones said that McManus tumbled and cartwheeled past him as the slide carried her about 2,000 feet down the face.

Jones descended to McManus' position at the toe of the slide. McManus was conscious but in significant pain. She told Jones that she had been partially

buried in the debris pile but was able to dig herself out.

In a follow up telephone interview with McManus on May 24, she offered the same account of the incident as described above and said the ride down the slide path was extremely violent. Her crampons were torn from her boots, ski poles torn from her pack, and other items of equipment lost. McManus confirmed that she was partially buried in the debris pile and had been able to thrust one arm and one leg out of the slide as she came to rest. She said this allowed her to dig herself out. She also said she struggled with her pack pulling her down while sliding in the debris, and with snow filling her airway.

Both Jones and McManus were wearing crampons, helmet, avalanche transceiver, and were using their ice axes at the time of the slide. McManus has been climbing for four years and Jones one year, and both had climbed the East Face of Teewinot early last summer. (Source: Mark Magnuson, SAR Coordinator)

## FALL ON SNOW, UNABLE TO SELF ARREST, EXCEEDING ABILITIES Wyoming, Grand Teton National Park, Mount Moran

Joseph Boots Allen, Justin Watsabaugh and Micha Thompson left a camp in a snow cave near the base of the Skillet Glacier on Mount Moran (12,605 feet) on June 20 at 0230. They climbed the glacier at night and reached the summit some time between 0530 and 0630. About 0700 the three began a ski descent of the Skillet Glacier. Allen was the last to descend and as he neared the bottom of the "handle" on the skillet, he fell. This was 500 to 1,000 feet below the summit. He attributes this to hitting some ice or slush on the surface of the snow, which caused him to lose control of his skis. Allen attempted to perform a self arrest with his ice ax, but this was unsuccessful. He slid into a runnel and then down the length of the glacier. In the process he slid over a rock outcropping known as "Rock Island" and then came to rest in avalanche debris. Allen fell a distance of 2,000 to 2,500 feet before stopping. His companions descended to his location and then provided medical care before moving him from the avalanche hazard. Watsabaugh descended to report the accident while Thompson stayed with the patient.

Analysis

Allen was admitted to Saint John's Hospital in Jackson with a dislocated hip and numerous abrasions. He had first skied at the age of three, but admitted that this was more difficult than anything he had attempted. The skiing party started very early in the morning to avoid any avalanche hazard. Allen was wearing a helmet, which probably saved him from serious injury or death. Allen's