

knees slightly bent to absorb some of the impact energy that would be totally borne by the ankles. Another recurrent theme in recent years with the popularity of bolt-protected routes is the failure of either mechanical or non-mechanical chocks. Thoroughly understand and practice using these devices before committing your life to them on a traditional lead!

Partners Stewart and Hammond put forth a very determined effort in their attempts to evacuate Arias. However, their decision to abort the evacuation when they realized the serious nature of Arias' injuries was even more significant to Arias' survival, as a fractured femur injury, if not stabilized, may become fatally complicated if loose bone internally shifts and ruptures major arteries. (Source: Jim Detterline, Longs Peak Supervisory Climbing Ranger)

### **RAPPEL ERROR—DID NOT SECURE RAPPEL ANCHOR SLING Colorado, Eldorado Canyon State Park**

On May 6, after belaying his partners down a 20 to 30 foot cliff, the victim (39) fell about 30 feet while rappelling. A Ranger found a red sling girth hitched around a tree with no knot in it. Apparently the victim placed the red sling around the tree and added a descending ring, but did not securely tie off the sling. The descending ring, rappelling device and locking carabiner were all securely attached to the victim.

#### **Analysis**

Know the appropriate knots to use. And always double check them. (Source: J. W. Wilder, Park Ranger)

### **FALL ON ROCK, PROTECTION PULLED OUT Colorado, Eldorado Canyon State Park, Kloof**

On May 22, the victim (29) was leading a climb on the route called Kloof on the west ridge. He was about 30 feet off the ground when he was unable to complete a move. He fell, pulling out his only piece of protection.

#### **Analysis**

Because of the angle of the rock face, the protection would not hold properly. Thought needs to be given to the angle of the rock in relationship to the angle if one was to fall and the force that the fall would place on the protection. (Source: J. W. Wilder, Park Ranger)

### **FALL ON WET ROCK, PLACED INADEQUATE PROTECTION, NO HARD HAT**

#### **Colorado, Eldorado Canyon State Park, Rupert**

On May 27, the victim (29) was leading Rupert when he fell. In his own words: "Water was seeping over the saddle, covering most of the last pitch. I tried to skirt the water (off-route) but ran out of real estate. While traversing the wet section, I slipped and fell. I hit my head almost immediately (no helmet) and was knocked unconscious. Total fall was 60 feet (run out—it even mentions this in the guide book). Two other parties assisted my partner in rescuing me. My injuries: serious abrasions, minor lacerations, concussion, basilar skull fracture. (Source: Brooke Hoyer)