IDAHO MUSEUM OF MINING AND GEOLOGY

Field Trip Road Log

May 24, 2014 Reynolds Creek/Kane Springs, Owyhee County
Leader: Ander Sundell, CWI
Note: odometers vary, mileages are approximate. Also, GPS values vary over time, but the listed points will get you within visual range of the features described.

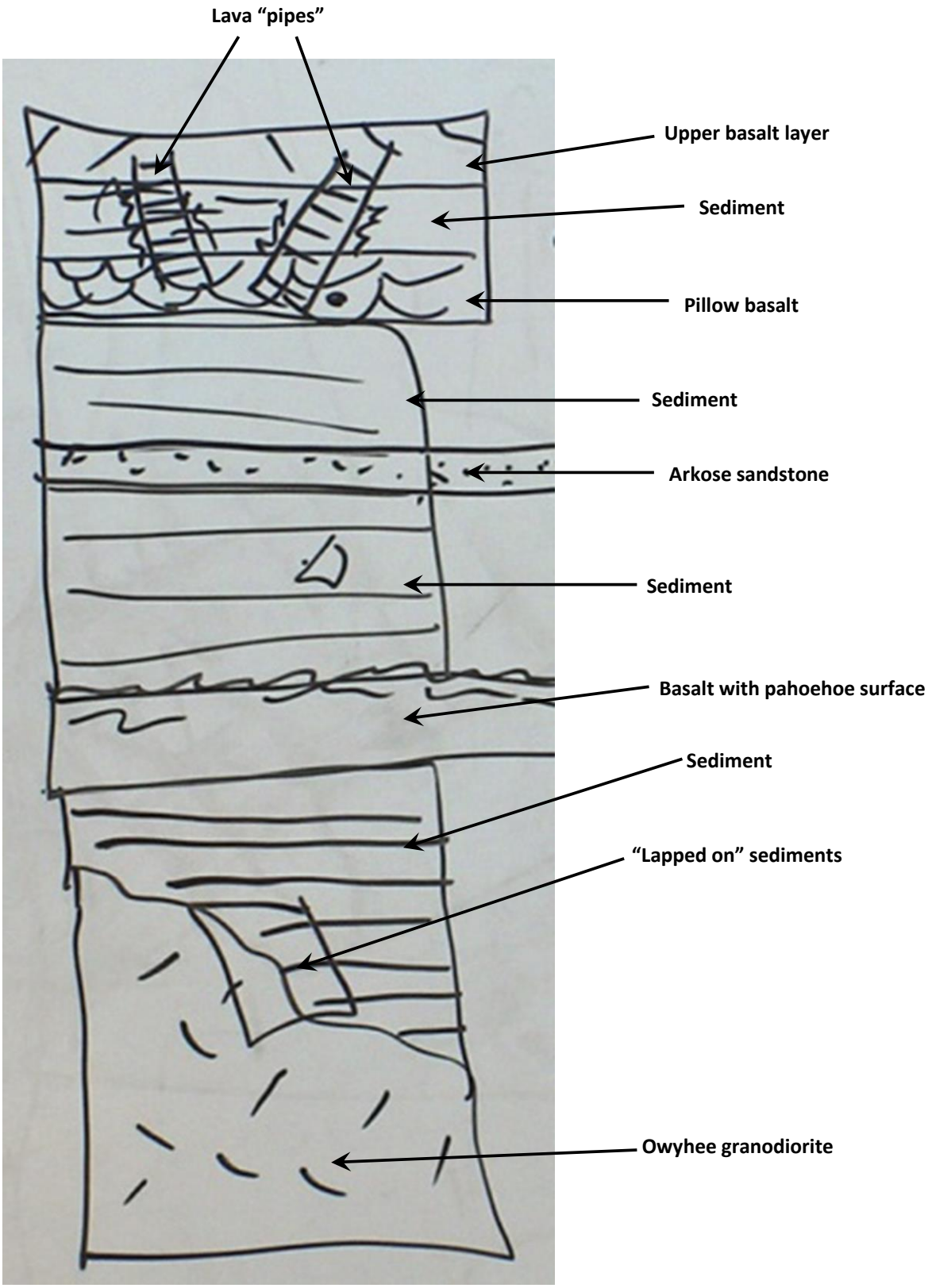
The trip starts from Walters Ferry on Highway 45 at the Snake River. To get to Walters Ferry, exit I-84 at Garrity Blvd. and head south (left). Garrity swings left and becomes 11th Ave. North. Follow 11th Ave. North over the railroad tracks, when it becomes 11th Ave. South, then turn left on 3rd Street South and right on 12th Ave. South – this will become Highway 45 – follow this south about 16 miles to Dan's Ferry Service at Walters Ferry, a good rest and supply stop.

Leaving Dan's, cross the river and at 0.5 miles veer left to join Highway 78 East. Turn Right on Upper Reynolds Creek Road (Sign to the Reynolds Creek Experimental Watershed) in another 0.3 miles. Follow Upper Reynolds Creek Road, veering left at 1.4 miles, for a total of 5.6 miles and park in the Kane Springs Parking Lot (**GPS: N 43.27901; W 116.66668**).

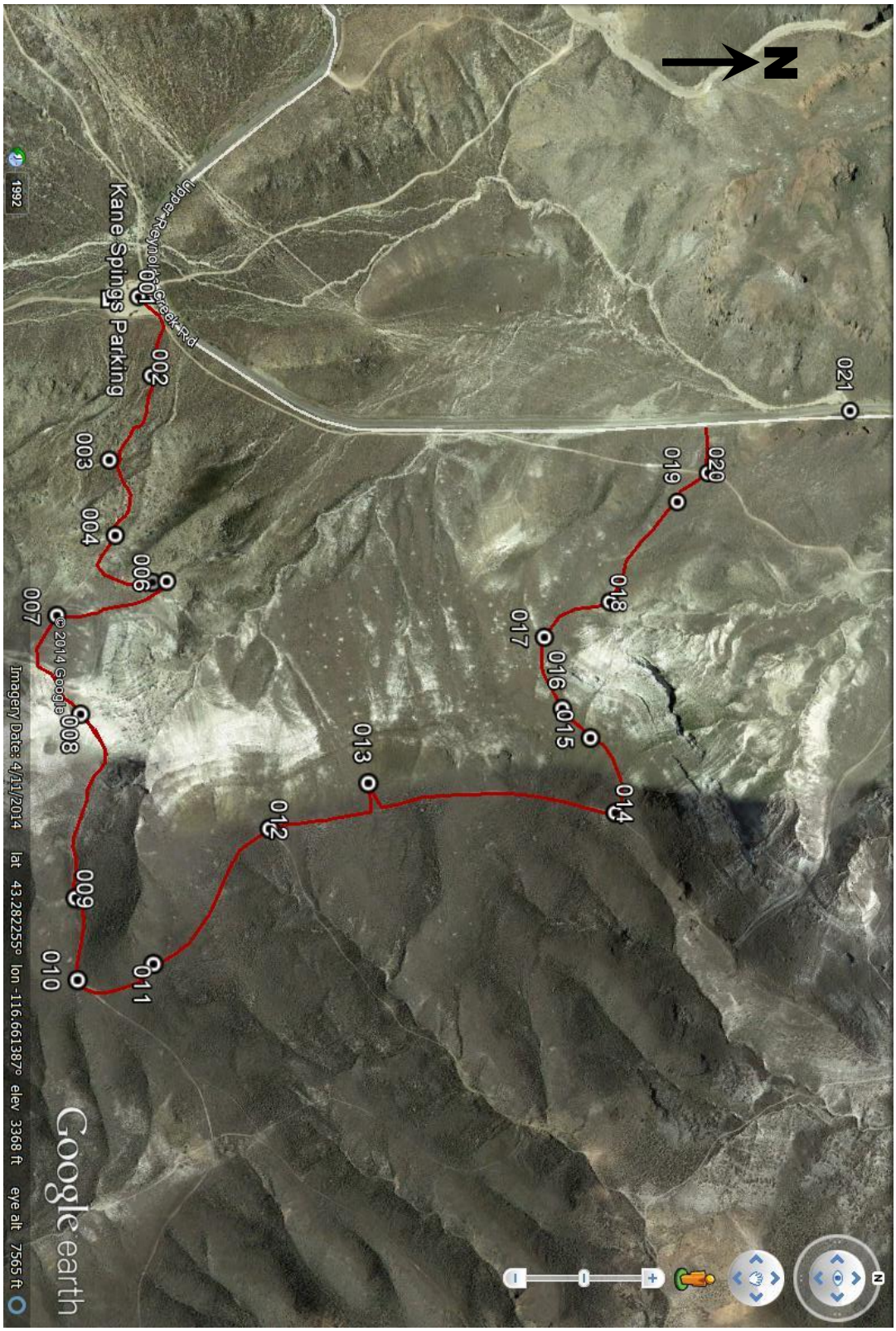
The western SRP, a northwest trending structural graben bounded by en echelon normal faults and filled with sediment up to 1.7 km thick. Sedimentary deposits in the western SRP range in age from Miocene through Quaternary and are known collectively as the Idaho Group. These deposits are dominantly lacustrine, with subordinate fluviatile and phreatomagmatic deposits Sedimentation during this time was controlled by the presence of a large lake, Lake Idaho, which expanded or shrank in response to variations in climate and tectonics over a period of about six million years between eight and two million years ago before finally draining through Hell's Canyon. Volcanic activity in the western SRP began about 11 million years ago with the eruption of rhyolite lavas from fissures that paralleled the range-front faults coeval with extension and graben formation. These rhyolites form the local basement upon which subsequent sediments and basalts were deposited. Basaltic activity in the western SRP began about 9 million years ago, forming lavas that underlie sedimentary deposits of Lake Idaho and, later, local basalt horizons inter-bedded with these sediments. Granodiorite similar to the Idaho batholith also occurs on the southern side of the western SRP, but it is not known if it is connected to the batholith at depth.

On the next page is a simplified schematic of the layers that are seen in the field trip hike, as drawn in the field by Ander Sundell, leader of this field trip.

!Note!: Much of this hike is overland in fairly steep and unstable terrain with about 400 feet of vertical gain; hiking poles, good grippy boots, plenty of water and abundant caution are advised. In warm weather, snakes, including rattlers, are possible. Let someone know where you are going and your expected time of return. Carrying a cell phone is advised – check your coverage map. The trails on the route are shared by motorcycles and ATVs; in steep places, they may be unable to stop – be prepared to get off the trail to let them pass.


Lava “pipes”
Upper basalt layer
Sediment
Pillow basalt
Sediment
Arkose sandstone
Sediment
Basalt with pahoehoe surface
Sediment
“Lapped on” sediments
Owyhee granodiorite

General route of hike



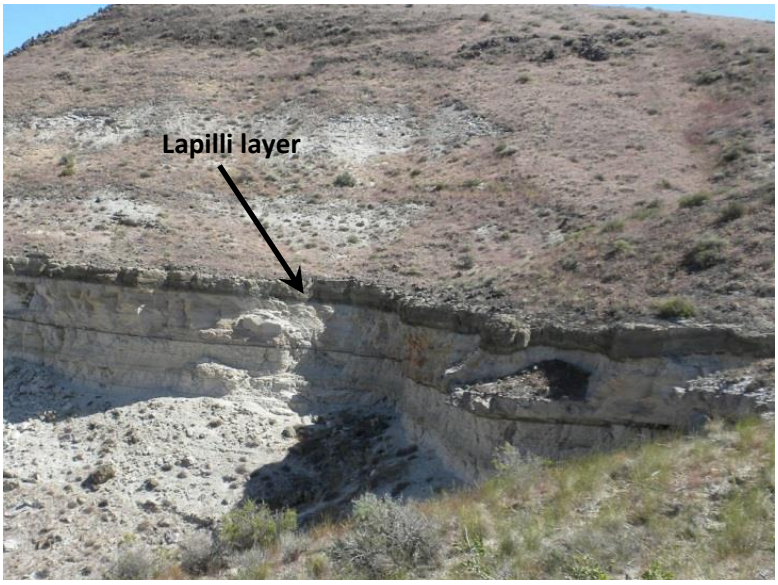
General description of the route

Note: Many of the GPS points are so close that normal position errors may make it hard to differentiate them. General direction and distance, as described below, may be more helpful for some locations, as will reference to the aerial photo.

From northeast corner of the parking lot, head northeast about 15 yards to a faint trail from the dirt road at GPS N 43.279300; W 116.66623; follow the trail up the hill (GPS point 2 about 67 yards from the dirt road at 43.279191: W 116.665579 should confirm that you are on the route).

GPS point 3 about 135 yards further at 43.278667: W 116.65829 is on the Owyhee granodiorite that is about 72 million years old.

At GPS point 4 about 140 yards further at N 43.278711; W 116.66275 turn Left off the trail and proceed about 90 yards to a low outcrop of arkosic sandstone at GPS point 6 (N43.72942; W 116.66254). Just to the left of the sandstone across a small swale there is an outcrop of the granodiorite. This is an example of the "on-lapping" of sediments on the plutonic granodiorite. Arkosic sandstone is usually derived from weathering of granite. There is about a 50 million year difference in the ages of the granodiorite and sandstone. From this point, looking to the right, or northeast, poorly cemented Lake Idaho sediments are visible. The darker band at the top is called "lapilli" which are coarser grained sediments arising from a volcanic ash fall.



To continue the route, you can head up and across the hillside toward a prominent post at the top (point 7) or simply retrace your steps to the trail and continue around the hill side to join a road. At GPS point 8 (N43.278590; W 116.660071) the road cuts a sedimentary layer of ash that is very poorly cemented and powdery. The lapilli layer is well seen to the left of the road (photo above).

In about 240 yards up the road, there is an outcrop of pillow basalt at GPS point 9 (43.278666; W116.658288). This was lava that erupted underwater in the lake, interbedded with sedimentary layers. Note the glassy texture of the rapidly-cooled basalt (photo).

The road tops out in another 100 yards at GPS point 10 (N43.278752; W 116.657276), where there is another outcrop of basalt intermixed with sediment – this is one of the "pipes" between the layers of basalt, as shown in the diagram.

From point 10, proceed on a track to the Left, heading north (not the track heading straight).

GPS point 11 (N 43.279433; W 116.657435) is another lava "pipe" and exhibits a concentric layer of glassy, rapidly cooled crust around a more fine-grained ("aphanitic") slower cooling core.

Continuing down the track, at GPS point 12 (N 43.280531; W 116.659198) continue Straight at the fork (do not take H421).

GPS point 13 is about 30 yards above a feeder dike that runs between the lower and upper basalt layers we have seen. If you want to go down to the dike itself, be very careful – the footing is quite unstable, almost like ball bearings. The dike cut through and altered sediments between the upper and lower basalt layers.

Continue down the track and at GPS point 14 (N 43.283906; W 116.659389), about 300 yards from point 13, you leave the path to the Left and work your way overland down and around the slope to GPS points 15 (N 43.283761; W 116.660391), 16 (N 43.283397; W 116.660783) and 17 (N 43.283241; W 116.661769). These are not absolute targets, but just show one possible route down the hill side. Again, be careful of the footing.

After getting down to around point 17, head generally north to GPS point 18 (N 43.283946; W 116.662280) – this is a definite target and is next to a small knob of highly silicified sandstone. From here, looking back to the hillside (east), you get a good view of a deep bed of lake sediments cut by a fault (dashed line in photo), with layers to the left clearly below those to the right (red solid lines).

From point 18, work your way generally downhill to the northwest toward GPS points 19 (N 43.284674; W 116.663738) where there is an outcrop of basalt and 20 (N 43.285012; W 116.664172), another outcrop of basalt that erupted through wet sediments and has lots of vesicles. Here there is a dirt road leading back (Left) to the parking area. Across the valley, the massive outcrops are rhyolite.

GPS point 21 (N 43.286706; W 116.665064) is best seen on the drive out and is an outcrop of basalt that also was deposited on a wet surface and has lots of vesicles and crystals. Down in the wash between the road and the basalt, there are interesting rhyolite boulders that have come down from the cliffs across the road. There is vitrophere (glassy) rhyolite and one boulder that shows “flow banding.”