# Where is the Benson Glacier (if it Still Exists)?

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### Introduction

The Benson Glacier is located in the Wallowa Mountains of northeastern Oregon. It was named for former Oregon governor Frank W. Benson by a mountaineering expedition in 1914 (Skovlin et al., 2001). The USGS Geographic Names Information System (GNIS) lists a Board of Geographic Names decision year of 1944 and an entry date of 22-May-1986. Benson Glacier is not labeled on the USGS 7<sup>1</sup>/<sub>2</sub>-minute Eagle Cap quadrangle (1990). Exactly which glacier is the actual Benson is unclear.

### Location

The location of Benson Glacier is inconsistent. The GNIS lists coordinates in decimal degrees (NAD83 Datum) of (-117.3010137, 45.1665423) and the Portland State University Glaciers of the American West (Glaciers Online) database shows a permanent snow or ice feature about 170 meters southwest of this point with that name. This glacier feature, like all the rest on this Web site, was taken directly from USGS



1920

Photo by Harley Richardson



#### 1992

Photo by David Jensen

Figure 1: Repeat photograph of Benson Glacier from Skovlin et al. (2001). The photo caption states that "The peak shown in the photograph is informally known as Glacier Peak. Glacier Peak is a satellite point along Eagle Cap Ridge, which is the central watershed feature of the Wallowa Mountain Batholith." topographic maps (Fountain et al., 2007). This particular feature is based on USGS aerial photographs taken in 1981.

A study of landscape change in northeastern Oregon (Skovlin et al., 2001) describes the Benson Glacier as a feature on the northwest slope of Glacier Peak (informal name) (Figure 1). It is our understanding through the lay literature (Sullivan, 1999) and through informed conversations that the glacial feature on Glacier Peak is colloquially considered Benson Glacier. Comparing recent (2007) oblique aerial images (Figure 2) depicting the same Benson Glacier photographed in Skovlin et al. (2001) with georectified vertical aerial imagery (Figure 3) and topographic map, it is apparent that the glacier Skovlin identifies is in a different location than the Benson Glacier location as defined by the GNIS.

Glacier Peak is a 9,495-foot sub-peak of Eagle Cap and lies on its southeast ridge. A mountaineering expedition in 1914 acquired photographs of what they identified as Eagle Cap Glacier(s) (David Jensen, personal communication, photographs from Wallowa County Museum). Based on landmarks, these photographs appear to be taken from the northwest slope of Glacier Peak. Stadter (1931) notes a small ice field on Eagle Cap, but does not specify exactly where it is located. Bentley (1974) states that a glacier existed in a depression located at the head of Glacier Lake cirque in 1940, but that "one would be hard-pressed to identify a 'glacier' in the Wallowa Mountains."

It is clear from Figure 4 that the glacial feature on Eagle Cap, the GNIS Benson Glacier, is a rock glacier, or debris-covered glacier. The location of the GNIS point is probably close to this feature. The Skovlin et al. Benson Glacier appears to be a true glacier—a perennial body of ice that moves (Paterson, 1994). We noted some anecdotal discussions in the lay community whether this feature is really a glacier or stagnant ice. Close inspection of a September 2007 aerial photograph by John Scurlock shows crevasses, an indicator of movement. Therefore we conclude that the Skovlin et al. (2001) Benson Glacier is a true glacier. However this classification is just a fine point. This glacier is so small that continued shrinkage will soon result in a stagnant ice mass.

#### Summary

There are two features that have been identified as Benson Glacier: the official GNIS location is the feature on Eagle Cap's north face, and the one colloquially considered to be Benson Glacier is located on Glacier Peak along Eagle Cap's southeast ridge. Both of these features are visible in Figure 4. We believe the feature on Glacier Peak to be the true Benson Glacier given the cultural history of the photographs, recent identification in the published literature, its visibility from Glacier Lake (a commonly visited location), and that it is a true glacier. Correspondingly, we believe the GNIS identification is an error because the feature is essentially a rock glacier with little or no snow and is, as far as we can tell, undocumented in the scientific and lay literature.

# Acknowledgements

Special thanks to David Jensen for sharing his knowledge of the Wallowa Mountains with us. Much appreciation goes to Matt Hoffman for his review of this paper and suggestions for its improvement.

## References

- Bentley, E.B., 1974, The Glacial Morphology of Eastern Oregon Uplands: Ph.D. thesis, University of Oregon, 250 p.
- Fountain, A.G., Hoffman, M., Jackson, K., Basagic, H.,



Figure 2: Matching landmarks between vertical (TerraServer) and oblique image taken by John Scurlock of the region northwest of Glacier Peak.

Nylen, T., and Percy, D., 2007, Digital Outlines and Topography of the Glaciers of the American West: U.S. Geological Survey Open-File Report 2006–1340, 23 p.

- Paterson, W.S.B., 1994, *The Physics of Glaciers*, 3rd edition: New York, Pergamon Press, 480 p.
- Skovlin, J.M., Strickler, G.S., Peterson, J.L., and Sampson, A.W. 2001, Interpreting Landscape Change in High Mountains of Northeastern Oregon from Long-term Repeat Photography. United States Department of Agriculture General Technical Report PNW-GTR-505.
- Stadter, F.W., 1931, Glaciation in the Wallowas: Mazama Annual, v. 13, no. 12, p. 26-31.
- Sullivan, W., L., 1999, *Exploring Oregon's Wild Areas*, 2nd edition: Seattle, The Mountaineers, 302 p.



Figure 3: Vertical aerial image (TerraServer) of the Eagle Cap vicinity illustrating possible locations of Benson Glacier.



Figure 4: Eagle Cap north face showing both features that could possibly be Benson Glacier. The snow/ice feature in the background is the Benson Glacier of Skovlin et al. (2001). The feature in the foreground is the Benson Glacier as identified by GNIS and Glaciers Online.



The Annual Journal of the Mazamas

# Vol. XC, No. 13 • December 2008



Pequeño Alpamayo. See the Bolivia article on page 18.

Photo by Steve Heikkila

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