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Segue 1 and 3: Captured Dwarf Galaxies and Stray Star Clusters¹ JOANNE HUGHES, ROSE MARIE HAYNES, EILEEN FLESHER, Seattle University — Along with globular clusters and field stars, the Milky Way's outer halo contains individual star systems, both dwarf galaxies and stellar clusters, which are not native to our Galaxy. Amongst the wealth of data produced by recent skysurveys, SEGUE (Sloan Extension for Galactic Understanding and Exploration) 1 was discovered in 2006, and thought to be either a dwarf galaxy or a faint globular cluster. Follow-up observations of stellar velocities found the system to be highly dark-matter dominated; all its stars appear to be very old (> 12 Gyr) and metalpoor. Segue 3 was discovered in 2010, and was originally considered to be an ancient and metal-poor system, although not as extreme as Segue 1. Several groups, including ours, confirmed that Segue 3 was younger and more metal-rich, and a 3 Gyr-old globular cluster could not have formed in the Milky Way today. Segue 3 was likely accreted from a dwarf galaxy, similar to the Magellanic Clouds; its former host was cannibalized by the Milky Way in the recent past. We explore observational tests, using databases and ground-based telescopes, that can be applied to these sparse interlopers to determine their origin and star formation history.

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