Washington State SAR Planning Unit
Evidence Search Services

The Washington State SAR Planning Unit (WASSPU) is a volunteer team whose members have specialized training in search planning and search management. WASSPU has supported some of the largest searches in recent Washington State history, and specializes in using probability-based search theory concepts to plan searches for human remains.

What is the Washington State SAR Planning Unit?

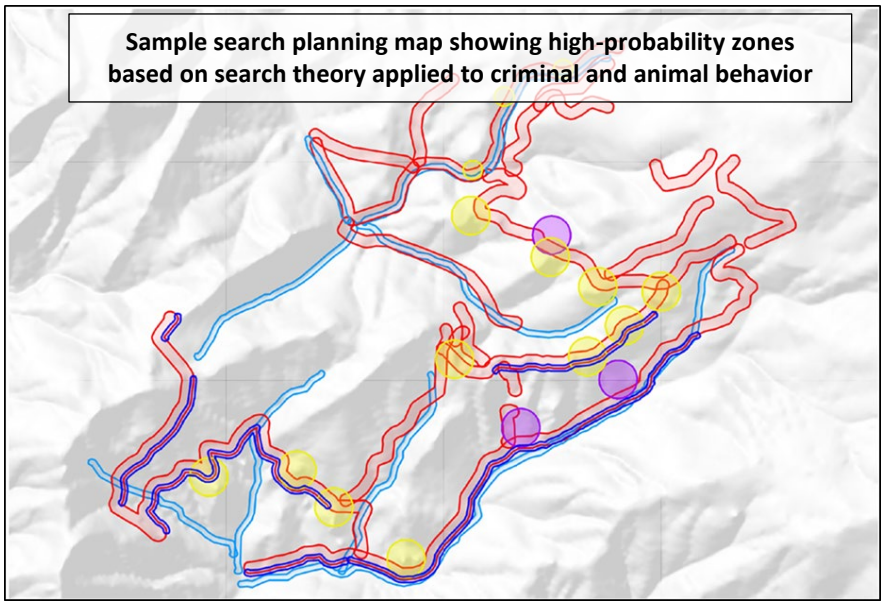
- We are an all-volunteer, non-profit organization, operating under the auspices of the Washington State Emergency Management Department. Our mission is to provide search planning expertise to assist during extended or complex SAR incidents.
- Our members have specialized training in search planning, search theory, and search management. Our advisors include a respected forensic anthropologist and an experienced major crimes detective.
- Since our founding in 2018, we have supported 40 SAR missions (including 8 evidence searches) in 13 counties and all three national parks in Washington State.
- SSPU members have also supported major crimes detectives in planning and managing large-scale searches for evidence in criminal cases in eight Washington counties.
- Mission support from the WA State Planning Unit can be requested via the Washington State Emergency Management Department.
- For initial consultation, or more information about the Washington State SAR Planning Unit contact us at president@wasspu.org, or visit our website: www.wasspu.org

What Services Do We Provide?

- In any search incident, the two primary management functions are: Planning -- which tells us where to search, and Operations -- which tells us how to search
- The State SAR Planning Unit supports planning functions: In simple terms, we help understand and prioritize where to search first, and where to search next.
- We use search planning best practices, combined with modern, probability-based search theory to guide search planning strategies, priorities, and tactics.
- We analyze incident data and operational data to help command staff make informed decisions. We also provide technical mapping and clue management services.
- We can produce search plans, incident action plans, and search maps remotely, and if requested, can provide on-site command staff for SAR incidents and evidence searches.

An Overview of Using Search Theory to Find Human Remains

Human remains can end up in natural areas via normal activities (lost hikers), via historical activities (indigenous burials), via abnormal behavior (suicide), or via criminal behavior (abduction and murder). In criminal cases, finding human remains has always been of vital importance, both for law enforcement and for families of the victims. Moreover, the recent advent of new DNA identification technology and genealogical matching techniques, has dramatically improved the ability to identify victims and resolve crimes. Finding human remains has become more important than ever, but for many reasons, this can be a daunting task in wilderness or rural areas. Foliage, fallen leaves, and forest duff may cover and conceal scattered bones. Planning searches for human remains involves uncertainty of the highest order.



Sample search planning map showing high-probability zones based on search theory applied to criminal and animal behavior

Can search theory aid law enforcement in the search for human remains in criminal incidents? We believe the answer is "Yes." The remains of murder victims in natural environments are acted upon first by criminals, and subsequently often distributed by animal scavengers. We believe that search theory concepts can be systematically integrated with knowledge of past patterns of criminal behavior, with understanding of natural animal behavior, and with terrain analysis, to optimize searches for human remains. Such a planning synthesis can be provided to law enforcement agencies, and used to focus searching in areas of higher probability, thereby increasing the likelihood of finding and recovering human remains.

- Our approach to planning searches for human remains begins with working with the requesting law enforcement agency to obtain and organize available incident information, and working with detectives to define "what happened?" incident scenarios.
- If enough suitable incident information is available, we can use that to model "event points" or "event lines": locations associated with a higher likelihood of finding evidence or remains.
- We follow this with a detailed terrain analysis (based on both online mapping and ideally, on-the-ground scouting).
- We then identify and model how criminal and animal behavior (based on both general assumptions and incident-specific data), interact with terrain features to generate probability models. For example, we would use historical observations to identify areas downhill from roadside pullouts as zones of higher probability.

- We then apply quantitative scoring models to rank high probability zones, and create an overall probability mosaic map to guide choices about where to search first (e.g., Zone A has higher probability than Zone B).
- If searches continue through multiple operational periods, we can model how searching in a given area lowers probability and how finding clues may raise probability in specific search segments.

Note: This approach does not replace the perspective and judgement of law enforcement investigators, it is intended to provide an additional planning perspective for them to consider.

Evidence Searches that WASSPU Personnel Have Supported

Date	County	Services Provided
2016	Snohomish	• Planning and operational support for a multi-operational period search for a clandestine grave.
2018	Kittitas	• Extensive planning, mapping, probability analysis, and on-site support for one of the largest evidence searches in recent Washington State history.
2018	King	• Planning support to a confidential, multi-operational period search for human remains.
2019	Kittitas	• Planning support to a multi-operational period search for human remains.
2019	Lewis	• Technical mapping support for a criminal evidence search.
2019	Okanogan	• Remote planning, on-site scouting, and preparation of a search plan in a remote forested area.
2019	Klickitat	• Remote planning, on-site scouting, search planning, probability analysis, and operational support on a search for human remains.
2020	Island	• Planning, probability modeling, coverage analysis, technical mapping, and on-site support for a search for human remains in a forested environment.
2020	Pierce	• Extensive planning for a search for human remains in a criminal case, contributing to a successful search outcome. Support included probability modeling, scenario analysis, clue management, and on-site support for multiple operational periods.
2021	Sitka, AK	• Remote planning and on-site operational support for a search for a missing person.
2021	Chelan	• Extensive planning for a search for human remains in a criminal case, contributing to a successful search outcome. Support included probability modeling, scenario analysis, clue management, and on-site support for multiple operational periods.

2021	Pierce	• Planning, probability modeling, coverage analysis, technical mapping, and on-site support for a search for human remains in a forested environment.
2021	Skagit	• Remote planning for a person missing since 2019, leading to a successful search outcome.