

Sample: Field operations terrain, Sennybridge: report

Project: Sample: Field operations terrain, Sennybridge

Goal: Describe the project Sample: Field operations terrain, Sennybridge: run the analyses that tell the most about its data, draw every result, and write a cited report.

Run: a36509fb-c3ff-418d-888b-dfbec0c1819e (running, 11 agent run(s))

Generated: 2026-10-18T05:50:35Z, version 1

Model cost: USD 0.0000 over 0 model call(s)

Data used

Data	Kind	Rows	Time span	Summary	Source
Observation posts	vector, Point	10		10 point features; 'manned' has 2 values (top: True 7, False 3); 'height_m' 2 to 2 (mean 2); 'ground_m' 449.5 to 532.4 (mean 493.7); named by 'name' (e.g. Observation post 1, Observation post 2, Observation post 3); extent -3.6612,52.0113 to -3.5369,52.0492. Point locations of Observation posts by manned.	[93]
Areas of operation	vector, Polygon	6		6 polygon (area) features; 'priority' 1 to 3 (mean 1.667); named by 'name' (e.g. AO North West, AO North, AO North East); total area 80.06 km2; extent -3.6734,51.9936 to -3.5267,52.0663. Areas (Areas of operation) with priority to compare and map.	[94]
Tracks and routes	vector, LineString	10		10 line features; 'surface' has 3 values (top: track 6, footpath 3, valley road 1); 'max_vehicle' has 4 values (top: foot only 5, 4x4 3, truck 1); total length 101.9 km; extent -3.6731,51.9938 to -3.5267,52.0661. Lines (Tracks and routes) such as routes or networks.	[95]
Patrol reports	vector, Point	650	2026-09-07 to 2026-10-04	650 point features; dated by 'reported_at' from 2026-09-07 to 2026-10-04; 'type' has 4 values (top: observation 173, vehicle 165, movement 156); 'confidence' has 3 values (top: medium 238, low 206, high 206); extent -3.6728,52.0126 to -3.5271,52.0491. Dated point events by type: where and when Patrol reports happen.	[2]
Obstacles	vector, Point	90	2026-08-24 to 2026-10-04	90 point features; dated by 'date' from 2026-08-24 to 2026-10-04; 'type' has 5 values (top: fallen tree 20, fence 20, washout 20); 'passable_by' has 2 values (top: tracked 37, foot only 26); extent -3.6713,51.9949 to -3.5392,52.0467. Dated point events by type: where and when Obstacles happen.	[3]
Landing zones	vector, Polygon	6		6 polygon (area) features; 'surface' has 2 values (top: grass 5, heather 1); 'slope_deg' 1.8 to 2.7 (mean 2.267); named by 'name' (e.g. Landing zone 1, Landing zone 2, Landing zone 3); total area 0.1524 km2; extent -3.6535,51.9966 to -3.5514,52.0625. Areas (Landing zones) with slope_deg to compare and map.	[96]
Water crossings	vector, Point	20		20 point features; 'type' has 3 values (top: ford 8, culvert 7, bridge 5); 'max_depth_m' 0.2 to 1.2 (mean 0.735); extent -3.6513,52.0278 to -3.5856,52.0321. Point locations of Water crossings by type.	[97]
Training area terrain model (DEM)	raster			1-band float32 raster (dem), 500 x 400 cells; resolution 20; band 1 237.7 to 543.7; extent -3.6734,51.9936 to -3.5267,52.0663. An elevation surface for terrain analysis.	[98]

Data	Kind	Rows	Time span	Summary	Source
Patrol log	table	180	2026-09-07 to 2026-10-04	Table of 180 rows and 6 columns without geometry; dated by 'date' from 2026-09-07 to 2026-10-04; 'ao_code' has 6 values (top: AO2 37, AO5 34, AO6 31); 'distance_km' 3 to 17.7 (mean 10.23); 'duration_h' 2 to 9 (mean 5.54); 'reports' 0 to 9 (mean 2.961). A table of Patrol log without locations.	[4]
Unit roster	table	12		Table of 12 rows and 5 columns without geometry; 'ao_code' has 6 values (top: AO1 2, AO2 2, AO3 2); 'role' has 3 values (top: logistics 4, infantry 4, engineers 4); 'personnel' 35 to 119 (mean 67); 'vehicles' 0 to 12 (mean 6.667). A table of Unit roster without locations.	[99]
Exercise orders	document			1-page pdf document 'Exercise orders'; language en; mentions 10 place(s): Observation (2), Observation post 1 (1), Observation post 6 (1), Observation post 7 (1), Observation post 10 (1). A document about Observation, Observation post 1, Observation post 6.	[100]
Sample: Field operations terrain, Sennybridge	record				[101]
Hot spot analysis: Obstacles	layer, Polygon	17			[102]
Hot spot analysis: Patrol reports	layer, Polygon	154			[103]
Summarize within: Areas of operation	layer, Polygon	6			[104]
Summarize within: Areas of operation	layer, Polygon	6			[105]
Summarize within: Areas of operation	layer, Polygon	6			[106]
Find point clusters: Observation posts	layer, Point	10			[107]
Find point clusters: cluster hulls	layer, Polygon	1			[108]
Find point clusters: Obstacles	layer, Point	90			[109]
Find point clusters: cluster hulls	layer, Polygon	4			[110]
Find point clusters: Patrol reports	layer, Point	650			[111]
Find point clusters: cluster hulls	layer, Polygon	1			[112]
Slope (degrees)	layer	0			[113]
Emerging hot spots: Obstacles	layer, Polygon	23			[114]
Emerging hot spots: Patrol reports	layer, Polygon	53			[115]
Repeat and near repeat classification: Obstacles	layer, Point	90			[116]
Calculate density: Obstacles	layer, Polygon	92			[117]
Calculate density: Patrol reports	layer, Polygon	917			[118]

Data	Kind	Rows	Time span	Summary	Source
Calculate density: Water crossings	layer, Polygon	307			[119]
Exercise orders	document				[120]

Timeline

Timeline: events per day by dataset

Per day: 42 days from 2026-08-24 to 2026-10-04; trend +0.969 per day; first half 243, second half 677 (+178.6%)

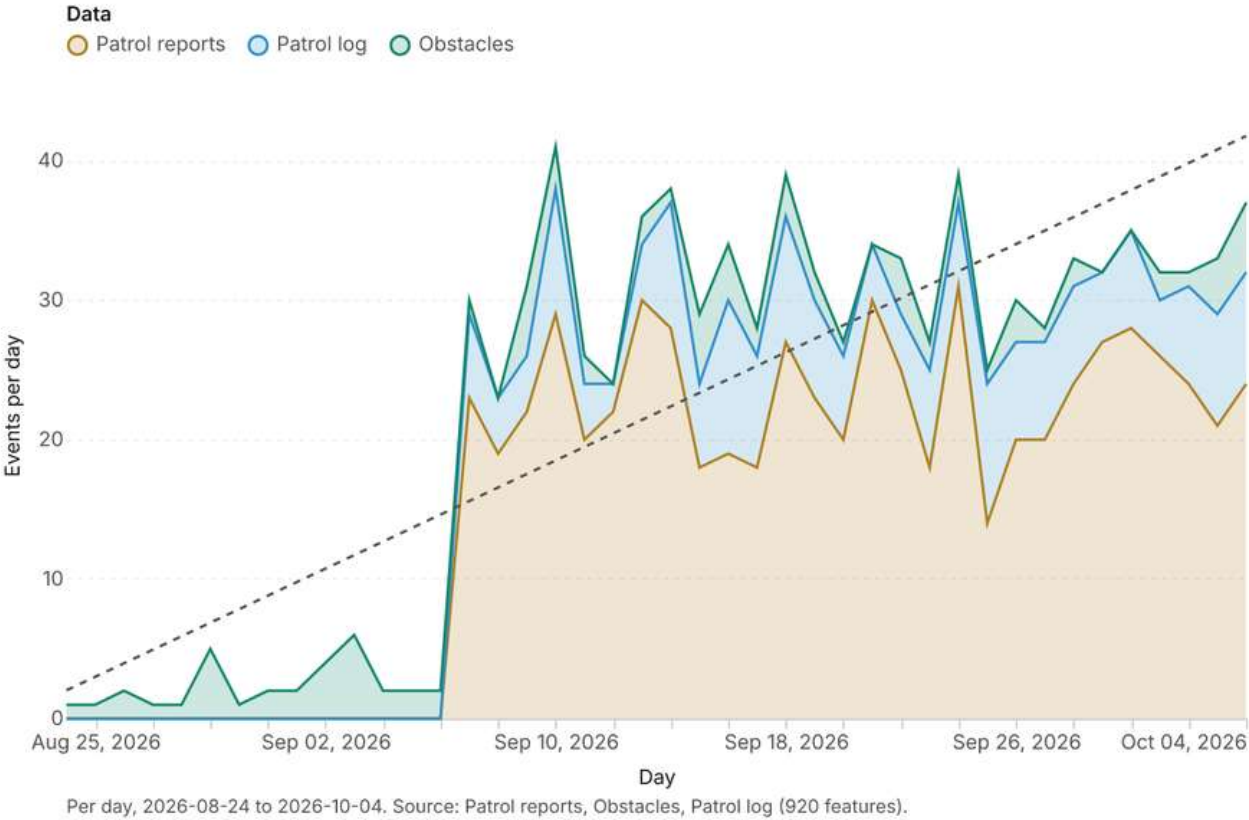


Figure 1. Timeline: events per day by dataset [1]. Per day, 2026-08-24 to 2026-10-04. Source: Patrol reports, Obstacles, Patrol log (920 features). The data is in the appendix.

The timeline counts 920 dated events in Patrol reports, Obstacles, Patrol log per day, from 2026-08-24 to 2026-10-04 [1][2][3][4]. By dataset: Patrol reports 650; Patrol log 180; Obstacles 90 [1]. The trend is +0.969 events per day; the second half of the days has 677 against 243 in the first (+178.6%) [1].

Busiest days

- 2026-09-10: 41 events [1]
- 2026-09-18: 39 events [1]
- 2026-09-24: 39 events [1]

Quietest days

- 2026-08-24: 1 event [1]
- 2026-08-25: 1 event [1]
- 2026-08-27: 1 event [1]

Hot spots

What this analysis is. Hot spot analysis: Getis-Ord Gi* hot and cold spots with z-scores, p-values and confidence bins [5]. In ArcGIS it is Find Hot Spots or Hot Spot Analysis (Getis-Ord Gi*); in QGIS, qgis:hotspot (plugin) [5].

Why it was run on this data. 90 points: Getis-Ord Gi* tests whether the concentrations in Obstacles are statistically significant [6].

What it found. Hot spots on Obstacles: Hot spot analysis: 1 layer saved: Hot spot analysis: Obstacles (17 features) [7][8]. It reported result, bins 17; result, count 17; result, elapsed ms 4; result, cell size m 2,000; result, incidents used 90; result, distance band m 2,000 [7].

Result	Value
result, bins	17
result, count	17
result, elapsed ms	4
result, cell size m	2,000
result, incidents used	90
result, distance band m	2,000
billing, cost	0.0518
billing, list price	0.0518
billing, upstream cost	0

Findings

Evidenced: Hot spots on Obstacles: Hot spot analysis: 1 layer saved: Hot spot analysis: Obstacles (17 features) [7][8].

Evidenced: It reported result, bins 17; result, count 17; result, elapsed ms 4; result, cell size m 2,000; result, incidents used 90; result, distance band m 2,000 [7].

Tool gp_hot_spots; parameters {"project": "9f6aa8f7-f5fe-4630-ab44-f56a90a94683", "features": {"layer": "Obstacles (10e309c5)"}, "aggregation": "hexagon", "cell_size_m": 2000.0, "distance_band_m": 2000.0}

Hot spots

What this analysis is. Hot spot analysis: Getis-Ord Gi* hot and cold spots with z-scores, p-values and confidence bins [5]. In ArcGIS it is Find Hot Spots or Hot Spot Analysis (Getis-Ord Gi*); in QGIS, qgis:hotspot (plugin) [5].

Why it was run on this data. 650 points: Getis-Ord Gi* tests whether the concentrations in Patrol reports are statistically significant [9].

What it found. Hot spots on Patrol reports: Hot spot analysis: 1 layer saved: Hot spot analysis: Patrol reports (154 features) [10][11]. It reported result, bins 154; result, count 154; result, elapsed ms 13; result, cell size m 500; result, incidents used 650; result, distance band m 500 [10].

Result	Value
result, bins	154
result, count	154
result, elapsed ms	13
result, cell size m	500
result, incidents used	650
result, distance band m	500
billing, cost	0.063
billing, list price	0.063
billing, upstream cost	0

Findings

Evidenced: Hot spots on Patrol reports: Hot spot analysis: 1 layer saved: Hot spot analysis: Patrol reports (154 features) [10][11].

Evidenced: It reported result, bins 154; result, count 154; result, elapsed ms 13; result, cell size m 500; result, incidents used 650; result, distance band m 500 [10].

A model draft was discarded because a sentence did not cite a source of this section.

Tool gp_hot_spots; parameters {"project": "9f6aa8f7-f5fe-4630-ab44-f56a90a94683", "features": {"layer": "Patrol reports (5e87153f)"}, "aggregation": "hexagon", "cell_size_m": 500.0, "distance_band_m": 500.0}

Summarize within

What this analysis is. Summarize within: Count and aggregate the features inside each polygon (or bin), proportionally for lines and polygons [12]. In ArcGIS it is Summarize Within or Aggregate Points; in QGIS, native:countpointsinpolygon or native:sumlinelengths [12].

Why it was run on this data. Count Observation posts inside each feature of Areas of operation by manned; the counts map as a choropleth (natural breaks, sequential colors) [13].

What it found. Summarize within on Observation posts, Areas of operation: Summarize within: 1 layer saved: Summarize within: Areas of operation (6 features) [14][15][16]. It reported result, count 6; result, elapsed ms 1; billing, cost 0.01034; billing, list price 0.01034; billing, upstream cost 0 [14].

Result	Value
result, count	6
result, elapsed ms	1
billing, cost	0.01034
billing, list price	0.01034
billing, upstream cost	0

Findings

Evidenced: Summarize within on Observation posts, Areas of operation: Summarize within: 1 layer saved: Summarize within: Areas of operation (6 features) [14][15][16].

Evidenced: It reported result, count 6; result, elapsed ms 1; billing, cost 0.01034; billing, list price 0.01034; billing, upstream cost 0 [14].

A model draft was discarded because a sentence did not cite a source of this section.

Tool gp_summarize_within; parameters {"stats": [{"stat": "sum", "field": "ground_m"}], "project": "9f6aa8f7-f5fe-4630-ab44-f56a90a94683", "features": {"layer": "Observation posts (fd2e56d2)"}, "group_by": "manned", "polygons": {"layer": "Areas of operation (eb593b97)"}}

Summarize within

What this analysis is. Summarize within: Count and aggregate the features inside each polygon (or bin), proportionally for lines and polygons [12]. In ArcGIS it is Summarize Within or Aggregate Points; in QGIS, native:countpointsinpolygon or native:sumlinelengths [12].

Why it was run on this data. Count Observation posts inside each feature of Areas of operation by manned; the counts map as a choropleth (natural breaks, sequential colors) [13].

What it found. The `gp\_summarize\_within` tool was executed [17], utilizing areas of operation [16] and obstacles [8] as inputs. The operation yielded a count of 6 [17]. Measurements showed the process took an elapsed time of 0 ms [17].

Result	Value
result, count	6
result, elapsed ms	0
billing, cost	0.01192

Result	Value
billing, list price	0.01192
billing, upstream cost	0

Findings

Evidenced: Summarize within on Obstacles, Areas of operation: Summarize within: 1 layer saved: Summarize within: Areas of operation (6 features) [8][16][17].

Evidenced: It reported result, count 6; result, elapsed ms 0; billing, cost 0.01192; billing, list price 0.01192; billing, upstream cost 0 [17].

Tool gp_summarize_within; parameters {"stats": [], "project": "9f6aa8f7-f5fe-4630-ab44-f56a90a94683", "features": {"layer": "Obstacles (10e309c5)"}, "group_by": "type", "polygons": {"layer": "Areas of operation (eb593b97)"} }

Summarize within

What this analysis is. Summarize within: Count and aggregate the features inside each polygon (or bin), proportionally for lines and polygons [12]. In ArcGIS it is Summarize Within or Aggregate Points; in QGIS, native:countpointsinpolygon or native:sumlinelengths [12].

Why it was run on this data. Count Observation posts inside each feature of Areas of operation by manned; the counts map as a choropleth (natural breaks, sequential colors) [13].

What it found. Summarize within on Patrol reports, Areas of operation: Summarize within: 1 layer saved: Summarize within: Areas of operation (6 features) [11][16][18]. It reported result, count 6; result, elapsed ms 1; billing, cost 0.02312; billing, list price 0.02312; billing, upstream cost 0 [18].

Result	Value
result, count	6
result, elapsed ms	1
billing, cost	0.02312
billing, list price	0.02312
billing, upstream cost	0

Findings

Evidenced: Summarize within on Patrol reports, Areas of operation: Summarize within: 1 layer saved: Summarize within: Areas of operation (6 features) [11][16][18].

Evidenced: It reported result, count 6; result, elapsed ms 1; billing, cost 0.02312; billing, list price 0.02312; billing, upstream cost 0 [18].

Tool gp_summarize_within; parameters {"stats": [], "project": "9f6aa8f7-f5fe-4630-ab44-f56a90a94683", "features": {"layer": "Patrol reports (5e87153f)"}, "group_by": "type", "polygons": {"layer": "Areas of operation (eb593b97)"} }

Find point clusters

What this analysis is. Find point clusters: Density-based clusters (DBSCAN, HDBSCAN or OPTICS, optionally space-time) with hulls and noise [19]. In ArcGIS it is Find Point Clusters or Density-based Clustering; in QGIS, native:dbscanclustering or native:stdbscanclustering [19].

Why it was run on this data. DBSCAN finds dense groups of Observation posts and separates noise [20].

What it found. The `gp\_find\_point\_clusters` tool was run using the Observation posts data [15], saving 2 layers, including Observation posts and cluster hulls [21].

Result	Value
result, count	10
result, noise	4

Result	Value
result, distance m	2,000
result, elapsed ms	5
result, min points	3
billing, cost	0.0502
billing, list price	0.0502
billing, upstream cost	0

Findings

Evidenced: Find point clusters on Observation posts: Find point clusters: 2 layers saved: Find point clusters: Observation posts (10 features); Find point clusters: cluster hulls (1 feature) [15][21].

Evidenced: It reported result, count 10; result, noise 4; result, distance m 2,000; result, elapsed ms 5; result, min points 3; billing, cost 0.0502 [21].

Tool gp_find_point_clusters; parameters {"method": "dbscan", "project": "9f6aa8f7-f5fe-4630-ab44-f56a90a94683", "features": {"layer": "Observation posts (fd2e56d2)"}, "distance_m": 2000.0, "min_points": 3}

Find point clusters

What this analysis is. Find point clusters: Density-based clusters (DBSCAN, HDBSCAN or OPTICS, optionally space-time) with hulls and noise [19]. In ArcGIS it is Find Point Clusters or Density-based Clustering; in QGIS, native:dbscanclustering or native:stdbcanclustering [19].

Why it was run on this data. DBSCAN finds dense groups of Obstacles and separates noise [22].

What it found. The `gp\_find\_point\_clusters` tool utilized the Obstacles layer for analysis [23]. This process resulted in 90 features being discovered, alongside 4 cluster hulls [23].

Result	Value
result, count	90
result, noise	1
result, distance m	1,000
result, elapsed ms	6
result, min points	3
billing, cost	0.0518
billing, list price	0.0518
billing, upstream cost	0

Findings

Evidenced: Find point clusters on Obstacles: Find point clusters: 2 layers saved: Find point clusters: Obstacles (90 features); Find point clusters: cluster hulls (4 features) [8][23].

Evidenced: It reported result, count 90; result, noise 1; result, distance m 1,000; result, elapsed ms 6; result, min points 3; billing, cost 0.0518 [23].

Tool gp_find_point_clusters; parameters {"method": "dbscan", "project": "9f6aa8f7-f5fe-4630-ab44-f56a90a94683", "features": {"layer": "Obstacles (10e309c5)"}, "distance_m": 1000.0, "min_points": 3}

Find point clusters

What this analysis is. Find point clusters: Density-based clusters (DBSCAN, HDBSCAN or OPTICS, optionally space-time) with hulls and noise [19]. In ArcGIS it is Find Point Clusters or Density-based Clustering; in QGIS, native:dbscanclustering or native:stdbcanclustering [19].

Why it was run on this data. DBSCAN finds dense groups of Patrol reports and separates noise [24].

What it found. Find point clusters on Patrol reports: Find point clusters: 2 layers saved: Find point clusters: Patrol reports (650 features); Find point clusters: cluster hulls (1 feature) [11][25]. It reported result, count 650; result, noise 44; result, distance m 500; result, elapsed ms 16; result, min points 16; billing, cost 0.063 [25].

Result	Value
result, count	650
result, noise	44
result, distance m	500
result, elapsed ms	16
result, min points	16
billing, cost	0.063
billing, list price	0.063
billing, upstream cost	0

Findings

Evidenced: Find point clusters on Patrol reports: Find point clusters: 2 layers saved: Find point clusters: Patrol reports (650 features); Find point clusters: cluster hulls (1 feature) [11][25].

Evidenced: It reported result, count 650; result, noise 44; result, distance m 500; result, elapsed ms 16; result, min points 16; billing, cost 0.063 [25].

Tool gp_find_point_clusters; parameters {"method": "dbscan", "project": "9f6aa8f7-f5fe-4630-ab44-f56a90a94683", "features": {"layer": "Patrol reports (5e87153f)"}, "distance_m": 500.0, "min_points": 16}

Zonal statistics

What this analysis is. Zonal statistics: count/min/max/mean/std/sum/median/majority per polygon as a table and as GeoJSON [26]. In ArcGIS it is Zonal Statistics as Table (polygons) [26].

Why it was run on this data. Statistics of Training area terrain model (DEM) inside each feature of Landing zones [27].

What it found. The Zonal statistics tool rs_zonal_statistics was employed for this analysis [28]. The execution involved step 0 of the process [28]. A total of 6 zones were analyzed, resulting in 6 row(s) of zonal statistics data [28].

Findings

Evidenced: Zonal statistics: Zonal statistics: 6 row(s) [28].

Evidenced: zones 6 [28].

Tool rs_zonal_statistics; parameters {"stats": ["mean", "min", "max", "std"], "zones": "Landing zones (6405dd78)", "raster_id": "Training area terrain model (DEM) (e55808a8)"}

Zonal statistics

What this analysis is. Zonal statistics: count/min/max/mean/std/sum/median/majority per polygon as a table and as GeoJSON [26]. In ArcGIS it is Zonal Statistics as Table (polygons) [26].

Why it was run on this data. Statistics of Training area terrain model (DEM) inside each feature of Landing zones [27].

What it found. The rs_zonal_statistics tool executed with 6 row(s) and 6 zones [29]. The analysis generated statistics for 6 zones [29]. Additionally, the tool counted 6 features [29]. The entire process was completed in 40 elapsed milliseconds [29].

Result	Value
stats, zones	6
features, count	6

Result	Value
elapsed ms	40

Findings

Evidenced: Zonal statistics: Zonal statistics: 6 row(s) [29].

Evidenced: zones 6 [29].

Evidenced: It reported stats, zones 6; features, count 6; elapsed ms 40 [29].

Tool rs_zonal_statistics; parameters {"stats": ["mean", "min", "max", "std"], "zones": "Areas of operation (eb593b97)", "raster_id": "Training area terrain model (DEM) (e55808a8)"}

Slope

What this analysis is. Slope: Horn slope in degrees or percent, with the share of ground in six grade classes [30]. In ArcGIS it is Slope (Spatial Analyst); in QGIS, Slope (GDAL DEM) [30].

Why it was run on this data. Slope of the Training area terrain model (DEM) surface [31].

What it found. Slope on Training area terrain model (DEM): Slope over 80.00 km2: mean 6.45 degrees, max 17.54 degrees; 35% of the ground is steeper than 15% [32][33]. DEM: Training area terrain model (DEM) [32][33]. Verified: 2 checks passed [32][33]. It reported dem, cols 500; dem, rows 400; dem, cell m 20; dem, relief m 306; dem, elev max m 543.7; dem, elev min m 237.7 [32].

Result	Value
dem, cols	500
dem, rows	400
dem, cell m	20
dem, relief m	306
dem, elev max m	543.7
dem, elev min m	237.7
dem, elev mean m	370.9
dem, missing frac	0
cost, usd	0
grid, cols	500
grid, rows	400
grid, cell m	20
stats, max	17.54
stats, min	0.01
stats, mean	6.45
stats, median	6.41
stats, steeper than 15pct	35.02
rows left out	0

Findings

Evidenced: Slope on Training area terrain model (DEM): Slope over 80.00 km2: mean 6.45 degrees, max 17.54 degrees; 35% of the ground is steeper than 15% [32][33].

Evidenced: DEM: Training area terrain model (DEM) [32][33].

Evidenced: Verified: 2 checks passed [32][33].

Evidenced: It reported dem, cols 500; dem, rows 400; dem, cell m 20; dem, relief m 306; dem, elev max m 543.7; dem, elev min m 237.7 [32].

Tool tr_slope; parameters {"dem": {"layer": "Training area terrain model (DEM) (e55808a8)"}, "project": "9f6aa8f7-f5fe-4630-ab44-f56a90a94683"}

Space time hot spots

What this analysis is. Emerging hot spots: Where hot spots are new, consecutive, intensifying, persistent, diminishing, sporadic, oscillating or historical over time [34]. In ArcGIS it is Emerging Hot Spot Analysis or Create Space Time Cube [34].

Why it was run on this data. Obstacles carry dates in 'date': emerging hot spot analysis finds new, intensifying and fading hot spots per day [35].

What it found. Space time hot spots on Obstacles: Emerging hot spots: 1 layer saved: Emerging hot spots: Obstacles (23 features) [8][36]. It reported result, count 23; result, elapsed ms 5; result, resolution 7; result, features used 90; result, time neighbors 0; billing, cost 0.1045 [36].

Result	Value
result, count	23
result, elapsed ms	5
result, resolution	7
result, features used	90
result, time neighbors	0
billing, cost	0.1045
billing, list price	0.1045
billing, upstream cost	0

Findings

Evidenced: Space time hot spots on Obstacles: Emerging hot spots: 1 layer saved: Emerging hot spots: Obstacles (23 features) [8][36].

Evidenced: It reported result, count 23; result, elapsed ms 5; result, resolution 7; result, features used 90; result, time neighbors 0; billing, cost 0.1045 [36].

A model draft was discarded because a sentence did not cite a source of this section.

Tool gp_space_time_hot_spots; parameters {"project": "9f6aa8f7-f5fe-4630-ab44-f56a90a94683", "features": {"layer": "Obstacles (10e309c5)"}, "interval": "day", "bin_shape": "h3", "resolution": 7, "time_field": "date"}

Space time hot spots

What this analysis is. Emerging hot spots: Where hot spots are new, consecutive, intensifying, persistent, diminishing, sporadic, oscillating or historical over time [34]. In ArcGIS it is Emerging Hot Spot Analysis or Create Space Time Cube [34].

Why it was run on this data. Patrol reports carry dates in 'reported_at': emerging hot spot analysis finds new, intensifying and fading hot spots per day [37].

What it found. The `gp\_space\_time\_hot\_spots` tool was run using the `Patrol reports` [11] and successfully identified 53 emerging hot spots [38].

Result	Value
result, count	53
result, elapsed ms	10
result, resolution	8
result, features used	650
result, time neighbors	0
billing, cost	0.1325

Result	Value
billing, list price	0.1325
billing, upstream cost	0

Findings

Evidenced: Space time hot spots on Patrol reports: Emerging hot spots: 1 layer saved: Emerging hot spots: Patrol reports (53 features) [11][38].

Evidenced: It reported result, count 53; result, elapsed ms 10; result, resolution 8; result, features used 650; result, time neighbors 0; billing, cost 0.1325 [38].

Tool gp_space_time_hot_spots; parameters {"project": "9f6aa8f7-f5fe-4630-ab44-f56a90a94683", "features": {"layer": "Patrol reports (5e87153f)"}, "interval": "day", "bin_shape": "h3", "resolution": 8, "time_field": "reported_at"}

Near repeat

What this analysis is. Repeat and near repeat classification: Classify incidents as originators, repeats (same place) or near repeats within a distance and time window, with a Knox test table [39]. In ArcGIS it is Repeat and Near Repeat Classification or Near Repeat Calculator [39].

Why it was run on this data. Near repeat analysis tests whether Obstacles close in space also follow each other within 4 days [40].

What it found. Near repeat on Obstacles: Repeat and near repeat classification: 1 layer saved: Repeat and near repeat classification: Obstacles (90 features) [8][41]. It reported result, days 4; result, count 90; result, chains 18; result, distance m 1,000; result, elapsed ms 5; result, pairs linked 76 [41].

Result	Value
result, days	4
result, count	90
result, chains	18
result, distance m	1,000
result, elapsed ms	5
result, pairs linked	76
billing, cost	0.0527
billing, list price	0.0527
billing, upstream cost	0

Findings

Evidenced: Near repeat on Obstacles: Repeat and near repeat classification: 1 layer saved: Repeat and near repeat classification: Obstacles (90 features) [8][41].

Evidenced: It reported result, days 4; result, count 90; result, chains 18; result, distance m 1,000; result, elapsed ms 5; result, pairs linked 76 [41].

Tool gp_near_repeat; parameters {"days": 4, "project": "9f6aa8f7-f5fe-4630-ab44-f56a90a94683", "features": {"layer": "Obstacles (10e309c5)"}, "distance_m": 1000.0, "time_field": "date"}

Calculate density

What this analysis is. Calculate density: Kernel density per square kilometer on a grid [42]. In ArcGIS it is Calculate Density or Kernel Density; in QGIS, native:heatmapkerneldensityestimation [42].

Why it was run on this data. 90 points in Obstacles: a density surface shows where they concentrate [43].

What it found. The density calculation processed 92 features from the Obstacles layer [44].

Result	Value
result, count	92
result, elapsed ms	3
result, bandwidth m	2,000
result, cell size m	1,000
result, excluded null	0
result, max density per km2	4.231
billing, cost	0.0518
billing, list price	0.0518
billing, upstream cost	0

Findings

Evidenced: Calculate density on Obstacles: Calculate density: 1 layer saved: Calculate density: Obstacles (92 features) [8][44].

Evidenced: It reported result, count 92; result, elapsed ms 3; result, bandwidth m 2,000; result, cell size m 1,000; result, excluded null 0; result, max density per km2 4.231 [44].

Tool gp_calculate_density; parameters {"kernel": "quartic", "project": "9f6aa8f7-f5fe-4630-ab44-f56a90a94683", "features": {"layer": "Obstacles (10e309c5)"}, "bandwidth_m": 2000.0, "cell_size_m": 1000.0}

Calculate density

What this analysis is. Calculate density: Kernel density per square kilometer on a grid [42]. In ArcGIS it is Calculate Density or Kernel Density; in QGIS, native:heatmapkerneldensityestimation [42].

Why it was run on this data. 650 points in Patrol reports: a density surface shows where they concentrate [45].

What it found. Density was calculated using the Patrol reports [11], generating a total of 917 features [46]. The analysis determined that the maximum density recorded was 160.4 per km² [46]. This calculation was completed in 27 ms [46] and generated a billing cost of 0.063 [46].

Result	Value
result, count	917
result, elapsed ms	27
result, bandwidth m	500
result, cell size m	200
result, excluded null	0
result, max density per km2	160.4
billing, cost	0.063
billing, list price	0.063
billing, upstream cost	0

Findings

Evidenced: Calculate density on Patrol reports: Calculate density: 1 layer saved: Calculate density: Patrol reports (917 features) [11][46].

Evidenced: It reported result, count 917; result, elapsed ms 27; result, bandwidth m 500; result, cell size m 200; result, excluded null 0; result, max density per km2 160.4 [46].

Tool gp_calculate_density; parameters {"kernel": "quartic", "project": "9f6aa8f7-f5fe-4630-ab44-f56a90a94683", "features": {"layer": "Patrol reports (5e87153f)"}, "bandwidth_m": 500.0, "cell_size_m": 200.0}

Calculate density

What this analysis is. Calculate density: Kernel density per square kilometer on a grid [42]. In ArcGIS it is Calculate Density or Kernel Density; in QGIS, native:heatmapkerneldensityestimation [42].

Why it was run on this data. 20 points in Water crossings: a density surface shows where they concentrate [47].

What it found. Calculate density on Water crossings: Calculate density: 1 layer saved: Calculate density: Water crossings (307 features) [48][49]. It reported result, count 307; result, elapsed ms 8; result, bandwidth m 1,000; result, cell size m 200; result, excluded null 0; result, max density per km2 9.049 [48].

Result	Value
result, count	307
result, elapsed ms	8
result, bandwidth m	1,000
result, cell size m	200
result, excluded null	0
result, max density per km2	9.049
billing, cost	0.0504
billing, list price	0.0504
billing, upstream cost	0

Findings

Evidenced: Calculate density on Water crossings: Calculate density: 1 layer saved: Calculate density: Water crossings (307 features) [48][49].

Evidenced: It reported result, count 307; result, elapsed ms 8; result, bandwidth m 1,000; result, cell size m 200; result, excluded null 0; result, max density per km2 9.049 [48].

Tool gp_calculate_density; parameters {"kernel": "quartic", "project": "9f6aa8f7-f5fe-4630-ab44-f56a90a94683", "features": {"layer": "Water crossings (208d3baf)"}, "bandwidth_m": 1000.0, "cell_size_m": 200.0}

Maps and charts

The run also made 20 map image(s) [50][51][52][53][54][55][56][57][58][59][60][61][62][63][64][65][66][67][68][69] and 23 chart(s) [70][71][72][73][74][75][76][77][78][79][80][81][82][83][84][85][86][87][88][89][90][91][92].

Hot spot analysis: Obstacles



Figure 2. Hot spot analysis: Obstacles [50]

Hot spot analysis: Patrol reports

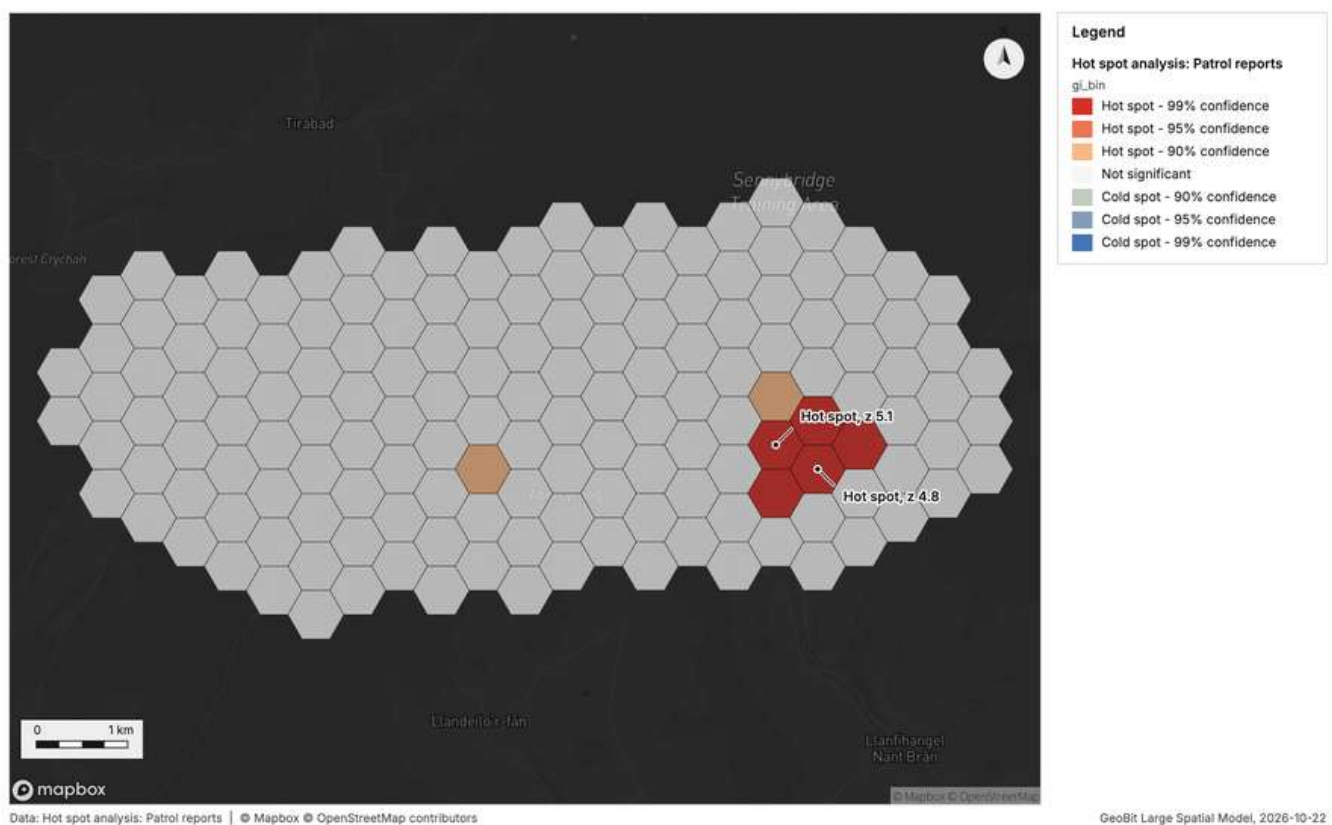


Figure 3. Hot spot analysis: Patrol reports [51]

Summarize within: Areas of operation

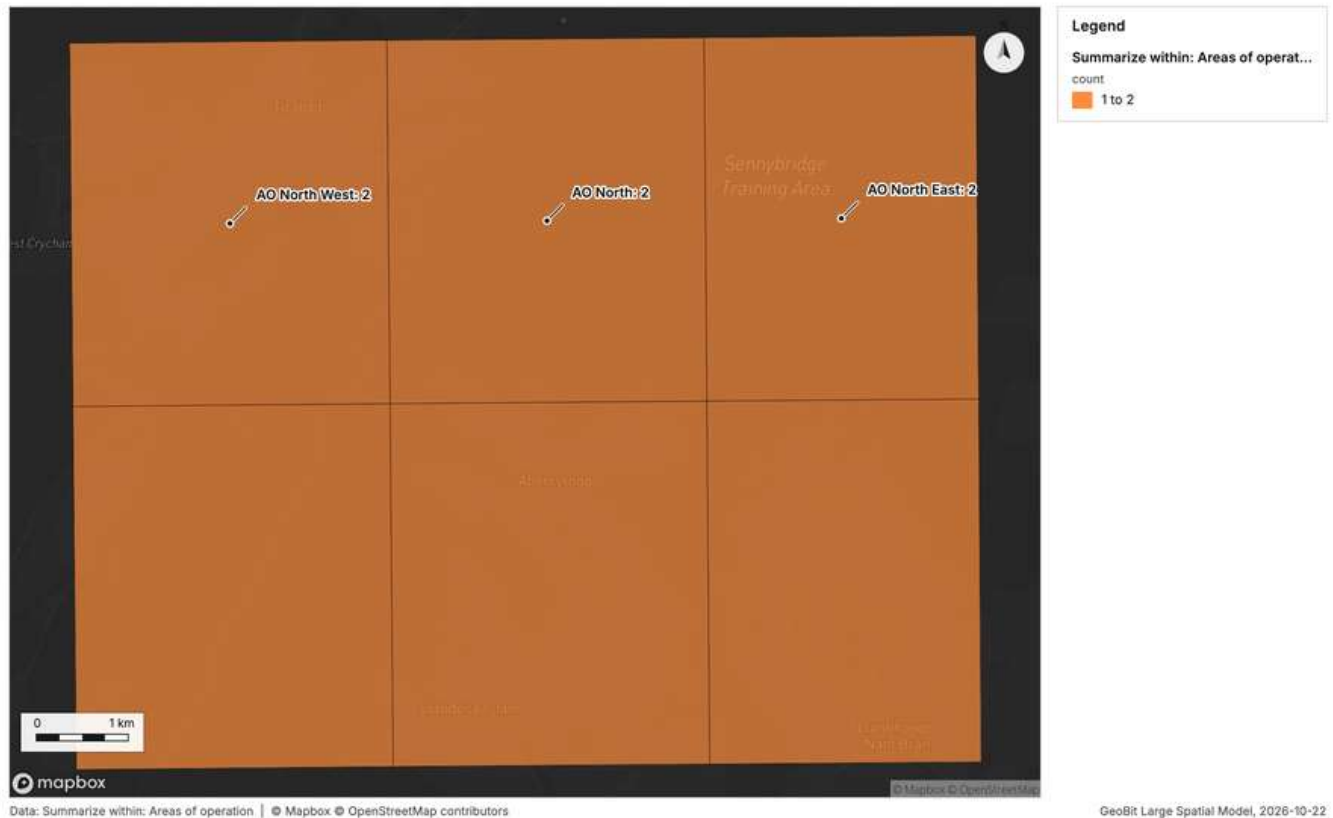


Figure 4. Summarize within: Areas of operation [52]

Summarize within: Areas of operation



Figure 5. Summarize within: Areas of operation [53]

Summarize within: Areas of operation



Figure 6. Summarize within: Areas of operation [54]

Find point clusters: Observation posts

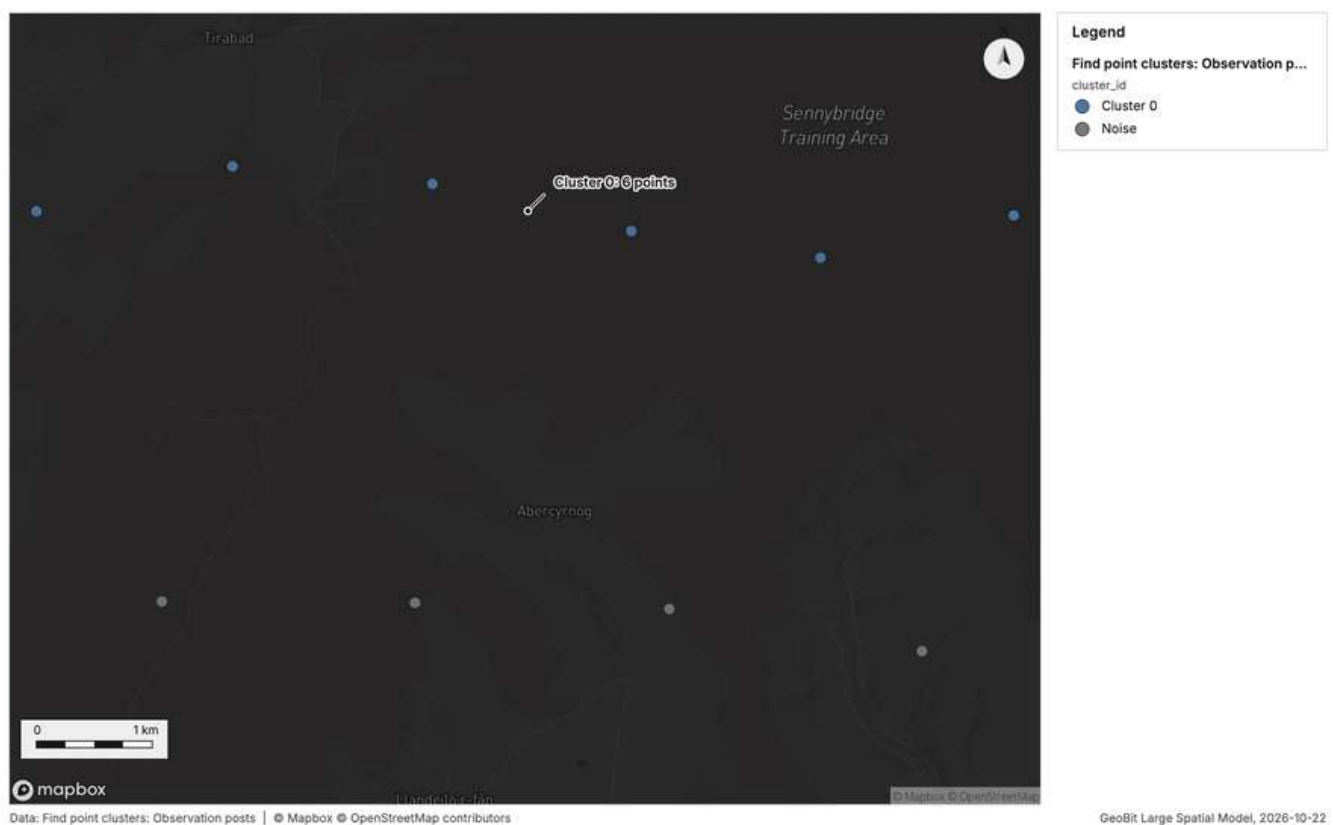


Figure 7. Find point clusters: Observation posts [55]

Find point clusters: cluster hulls

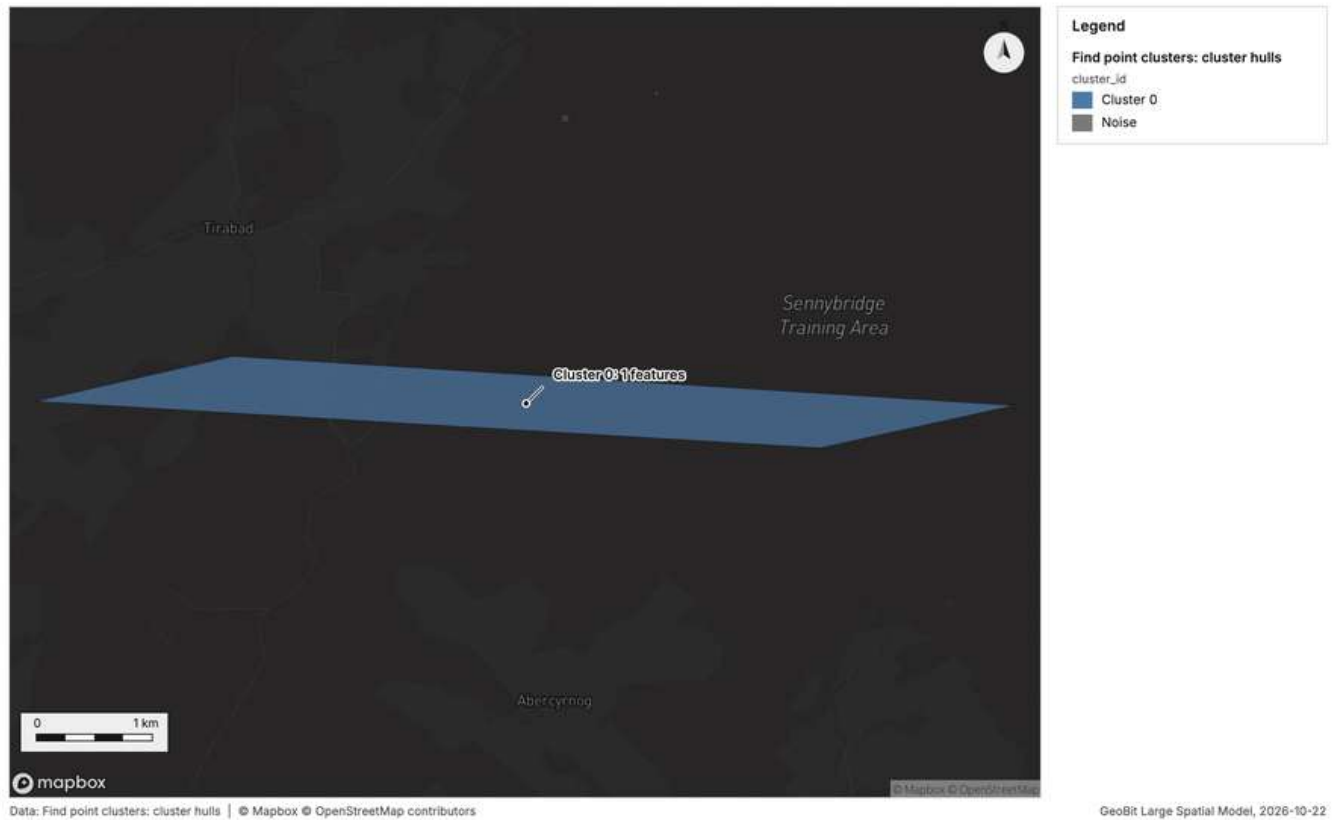


Figure 8. Find point clusters: cluster hulls [56]

Find point clusters: Obstacles



Figure 9. Find point clusters: Obstacles [57]

Find point clusters: cluster hulls



Figure 10. Find point clusters: cluster hulls [58]

Find point clusters: Patrol reports



Figure 11. Find point clusters: Patrol reports [59]

Find point clusters: cluster hulls

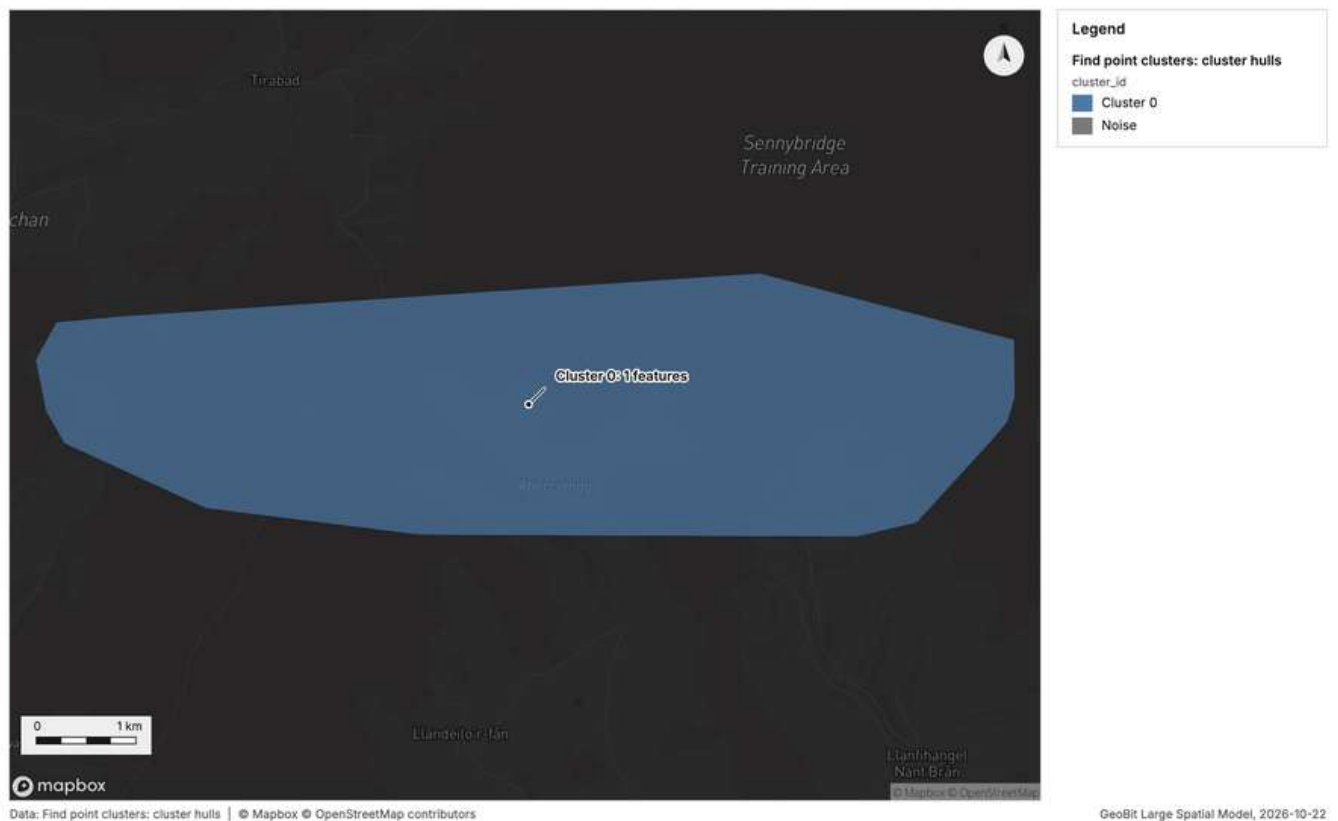


Figure 12. Find point clusters: cluster hulls [60]

Slope (degrees)

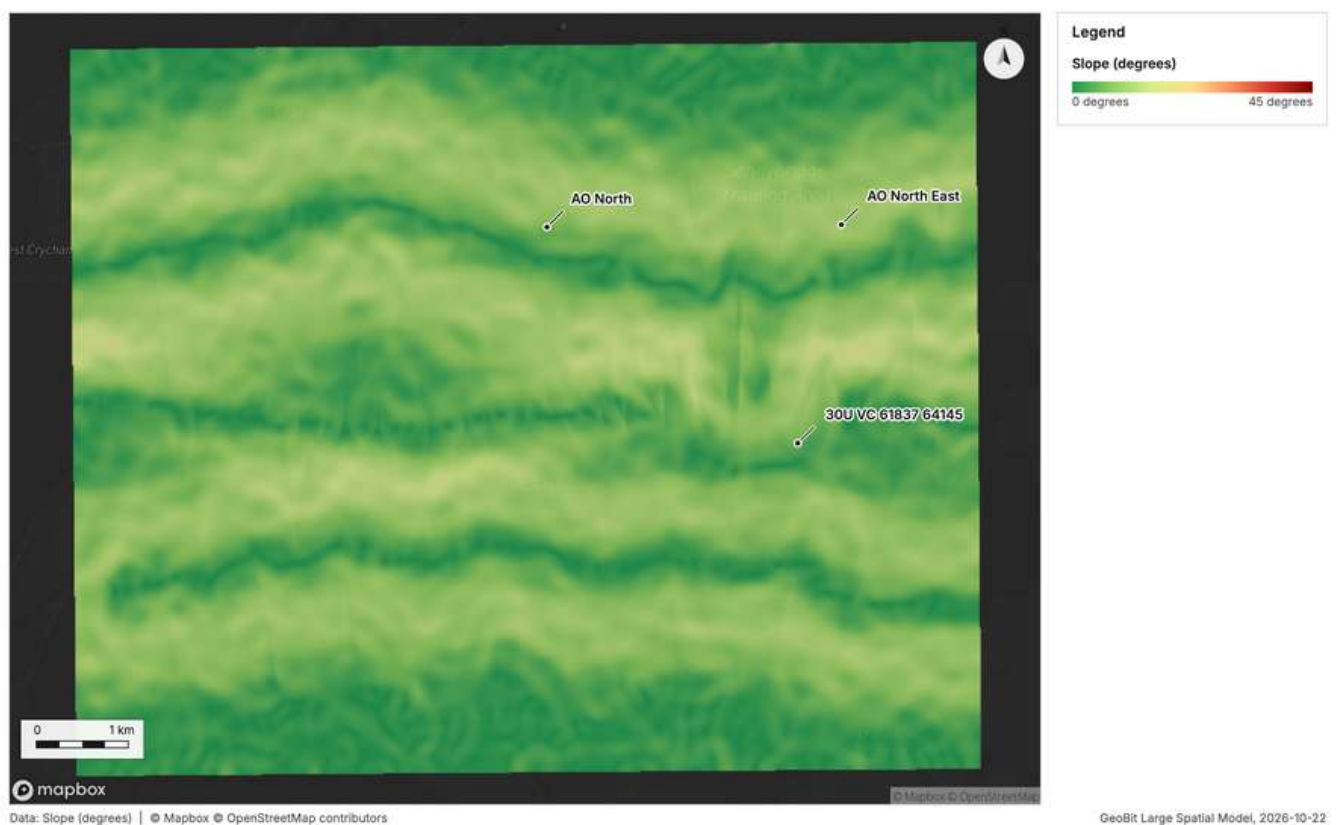


Figure 13. Slope (degrees) [61]

Emerging hot spots: Obstacles

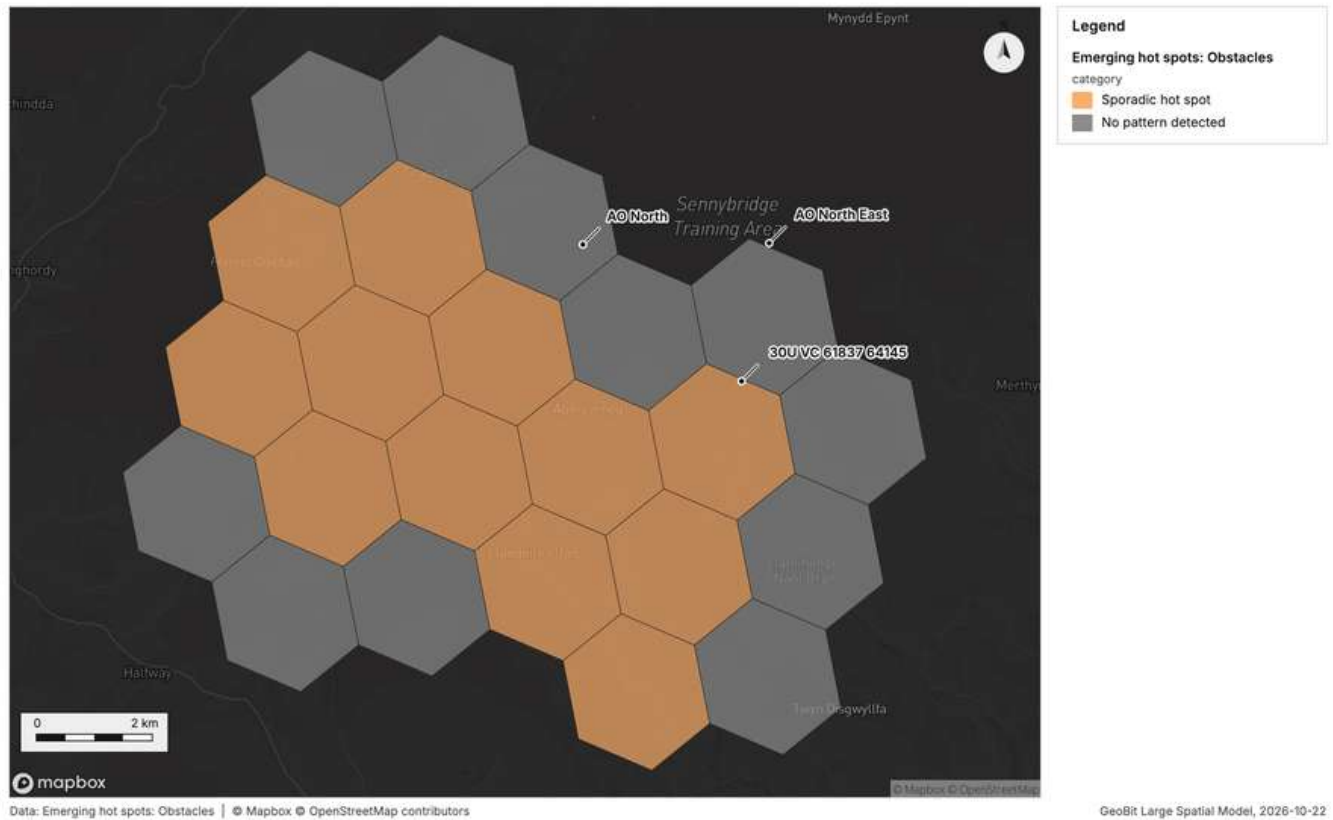


Figure 14. Emerging hot spots: Obstacles [62]

Emerging hot spots: Patrol reports



Figure 15. Emerging hot spots: Patrol reports [63]

Repeat and near repeat classification: Obstacles



Figure 16. Repeat and near repeat classification: Obstacles [64]

Calculate density: Obstacles



Figure 17. Calculate density: Obstacles [65]

Calculate density: Patrol reports

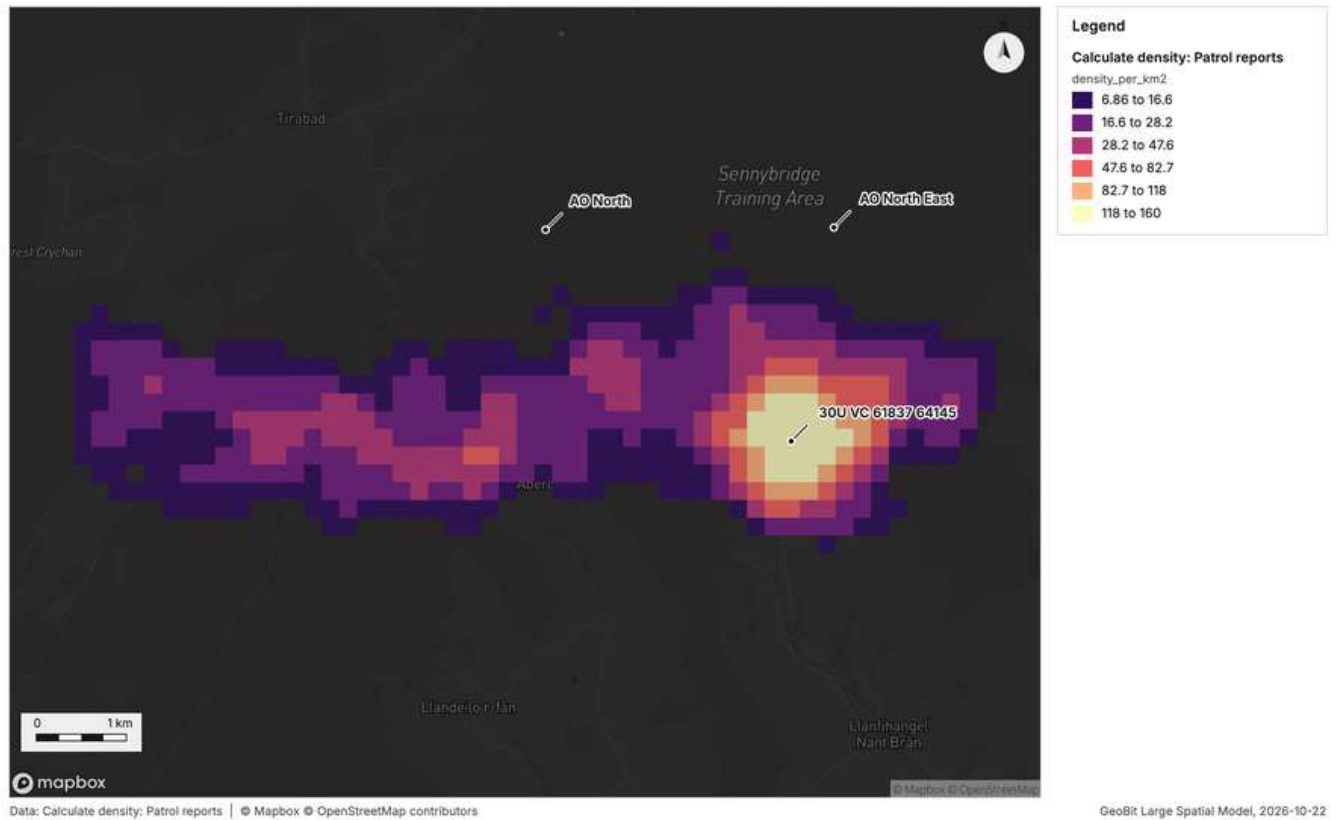


Figure 18. Calculate density: Patrol reports [66]

Calculate density: Water crossings



Figure 19. Calculate density: Water crossings [67]

Landing zones by slope_deg

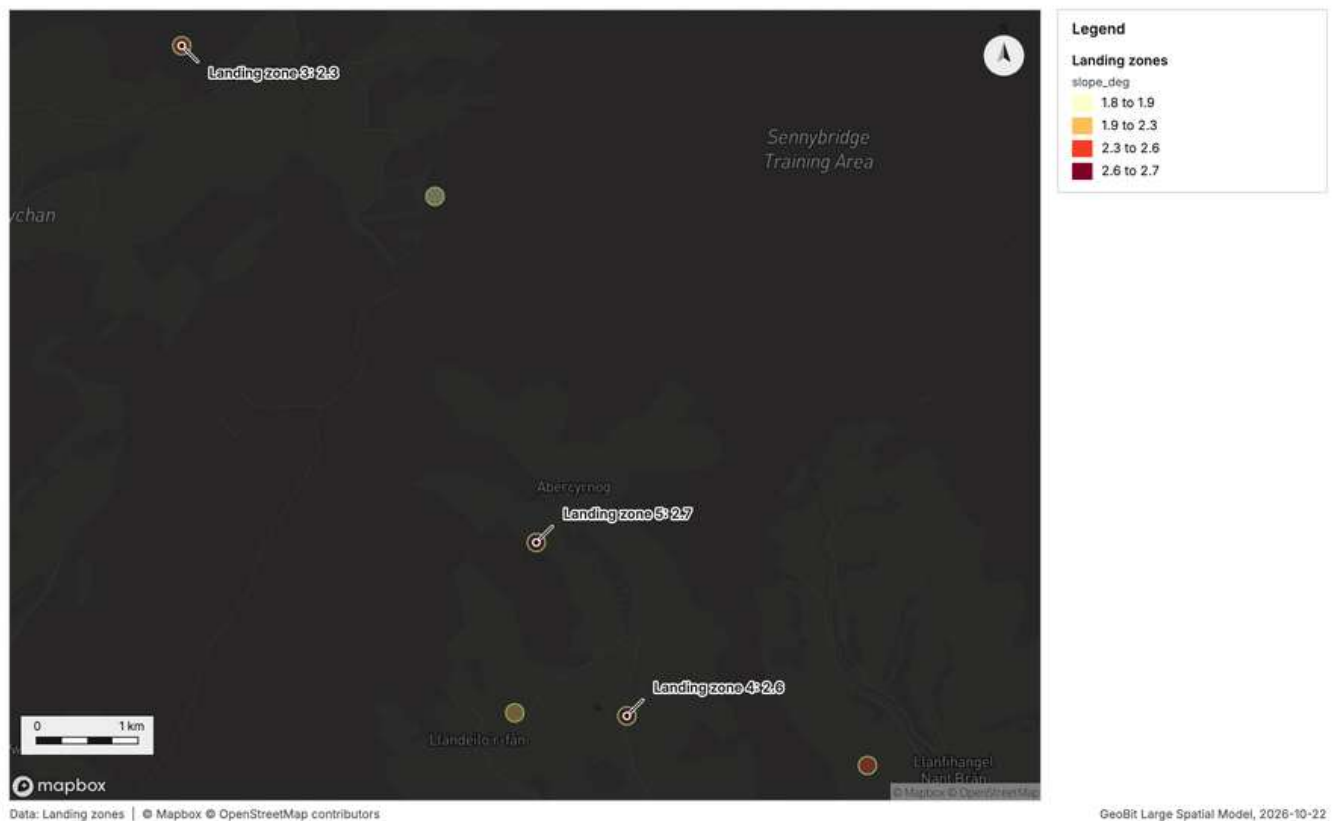


Figure 20. Landing zones by slope_deg [68]

Areas of operation by priority



Figure 21. Areas of operation by priority [69]

What the map shows. The map illustrates the count of "Areas of operation [52]

Inferred: read from the image by gemma4:e4b, not evidence.

Count per day by reported_at and type

Per day: 28 days from 2026-09-07 to 2026-10-04; trend +0.0389 per day; first half 318, second half 332 (+4.4%)

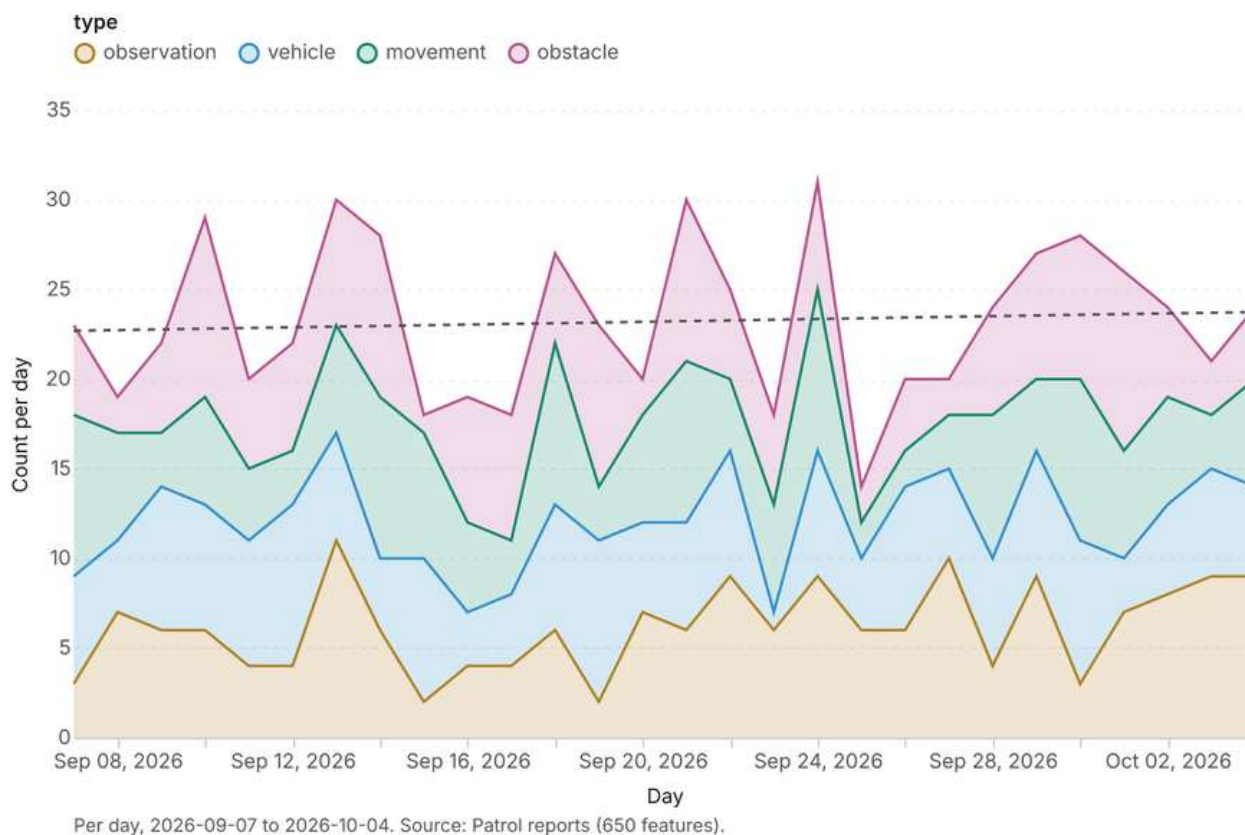


Figure 22. Patrol reports over time (reported_at) [70]. Per day, 2026-09-07 to 2026-10-04. Source: Patrol reports (650 features). The data is in the appendix.

Count per day by date and type

Per day: 42 days from 2026-08-24 to 2026-10-04; trend -0.00081 per day; first half 45, second half 45 (+0.0%)

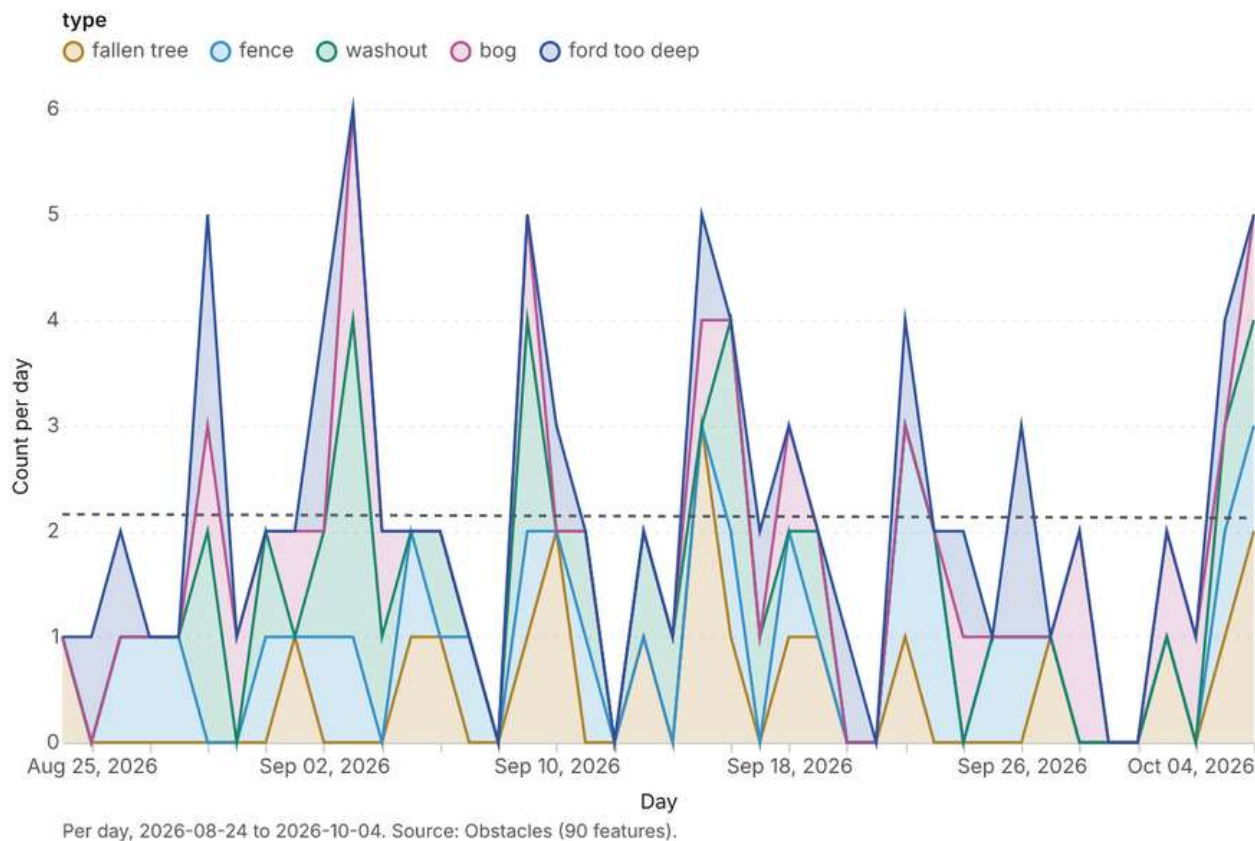


Figure 23. Obstacles over time (date) [71]. Per day, 2026-08-24 to 2026-10-04. Source: Obstacles (90 features). The data is in the appendix.

Count per day by date and ao_code

Per day: 28 days from 2026-09-07 to 2026-10-04; trend +0.058 per day; first half 89, second half 91 (+2.2%)

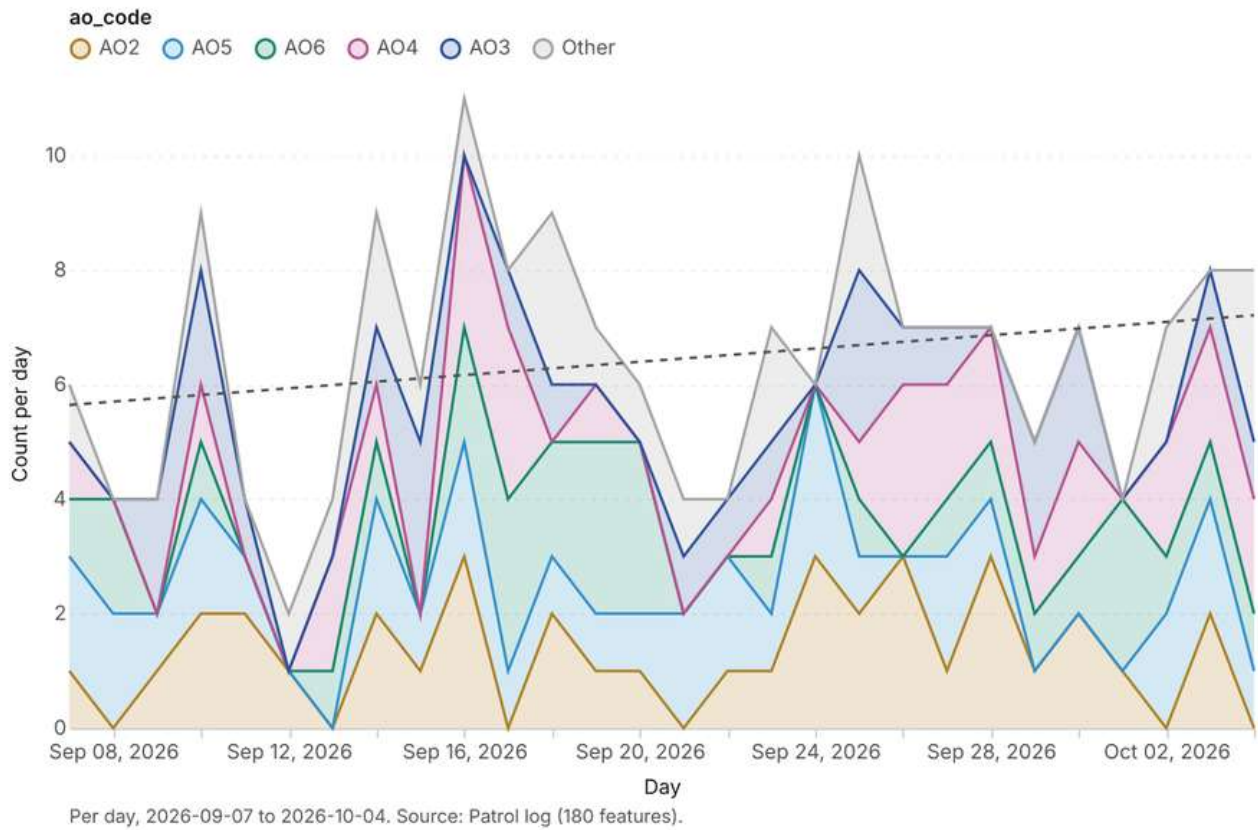


Figure 24. Patrol log over time (date) [72]. Per day, 2026-09-07 to 2026-10-04. Source: Patrol log (180 features). The data is in the appendix.

Gi* z-score distribution

17 features: 1 hot and 0 cold at 90% confidence or more

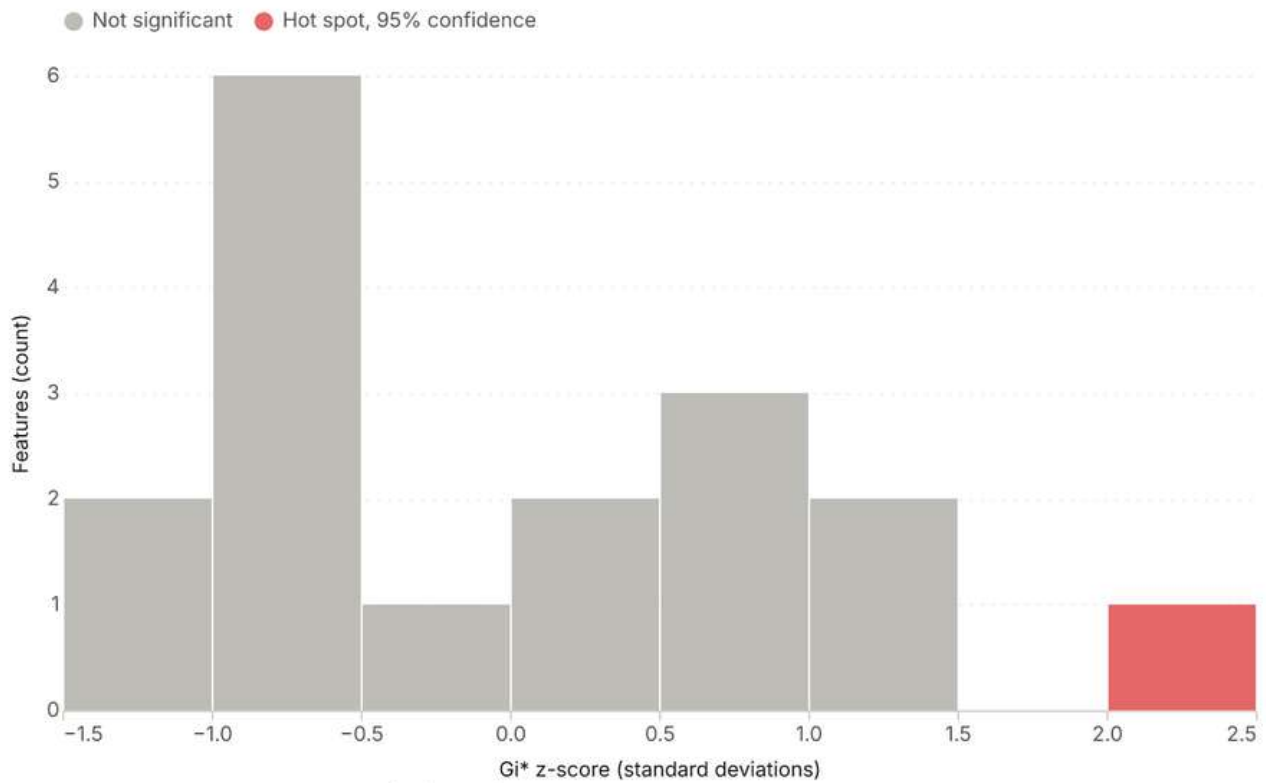


Figure 25. Hot spot analysis: Obstacles [73]. Source: Hot spot analysis: Obstacles (17 features). The data is in the appendix.

Gi* z-score distribution

154 features: 7 hot and 0 cold at 90% confidence or more

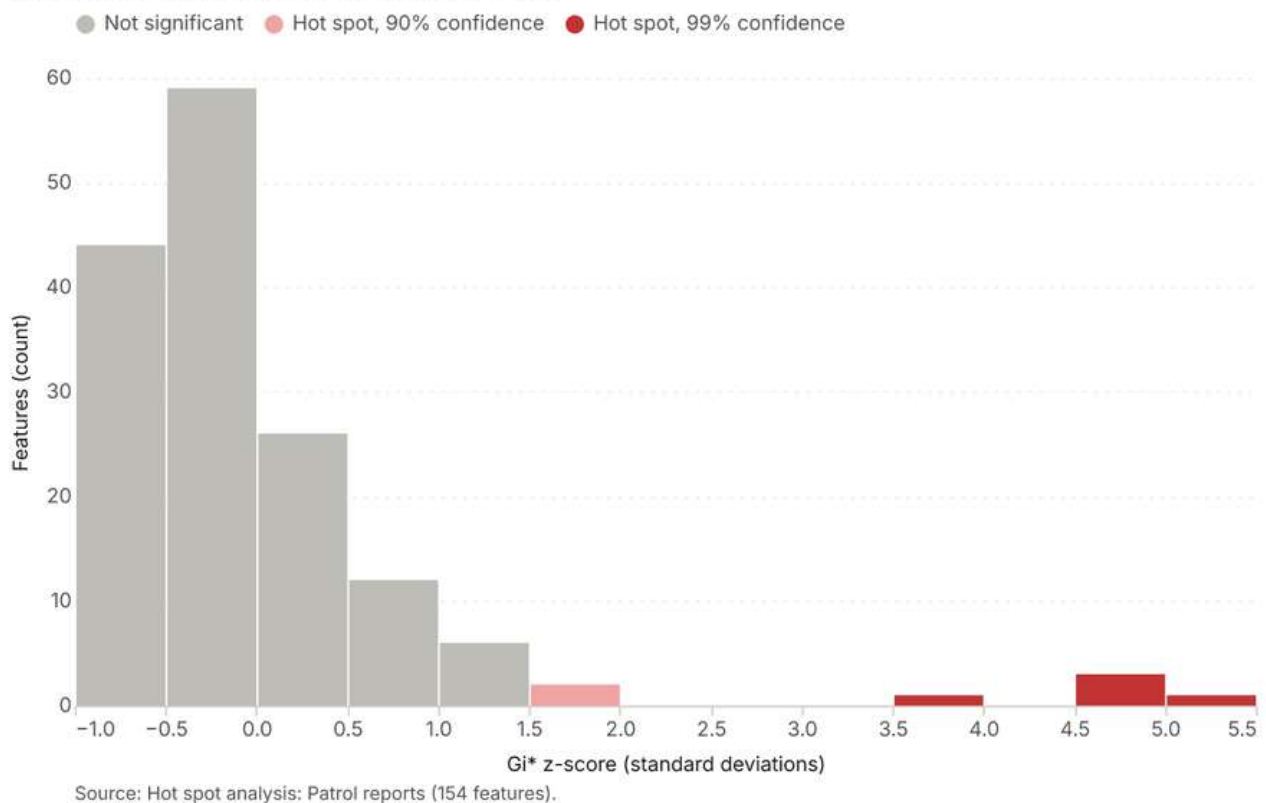
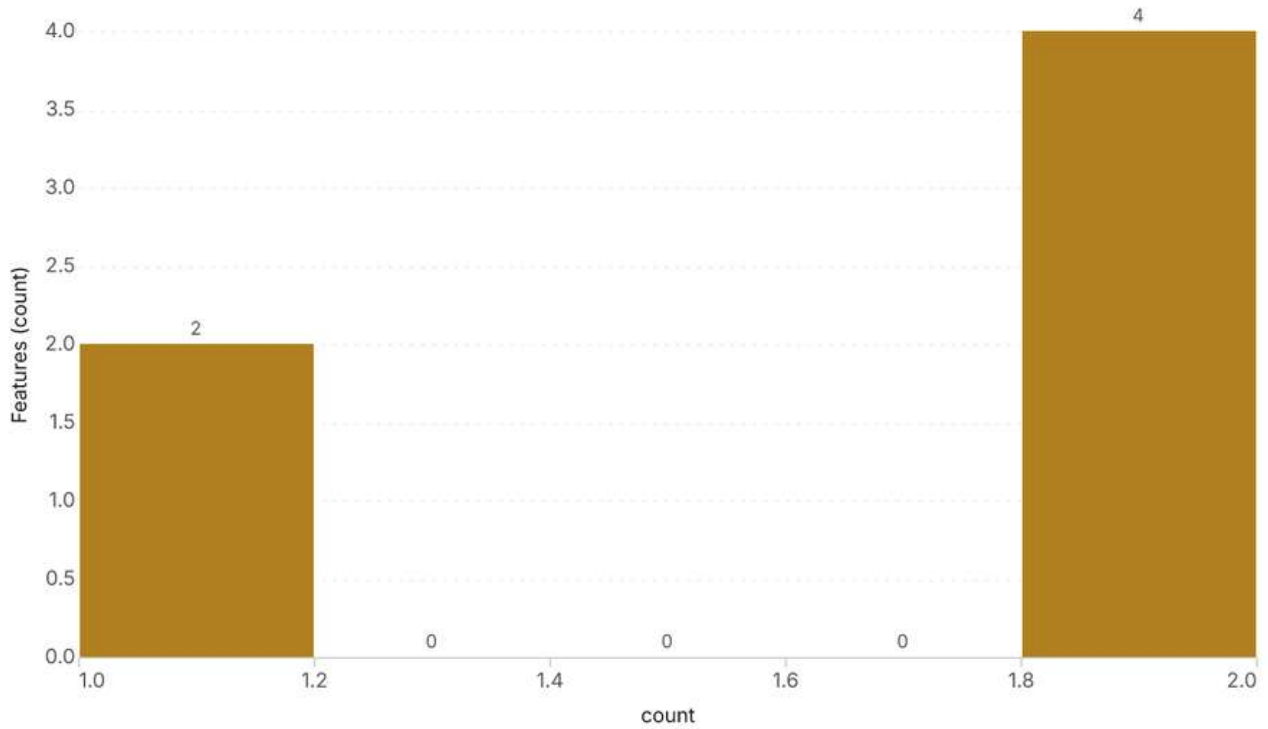


Figure 26. Hot spot analysis: Patrol reports [74]. Source: Hot spot analysis: Patrol reports (154 features). The data is in the appendix.

Distribution of count

6 values in 5 bins

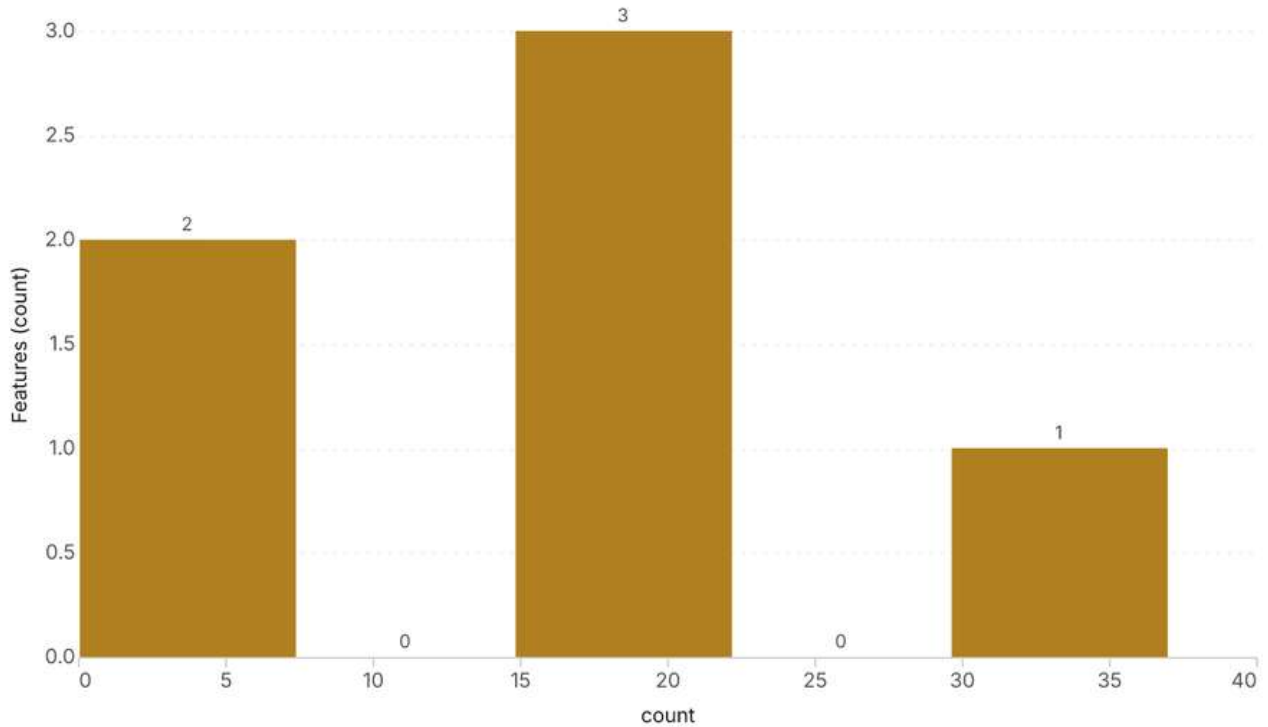


Source: Summarize within: Areas of operation (6 features).

Figure 27. Summarize within: Areas of operation [75]. Source: Summarize within: Areas of operation (6 features). The data is in the appendix.

Distribution of count

6 values in 5 bins

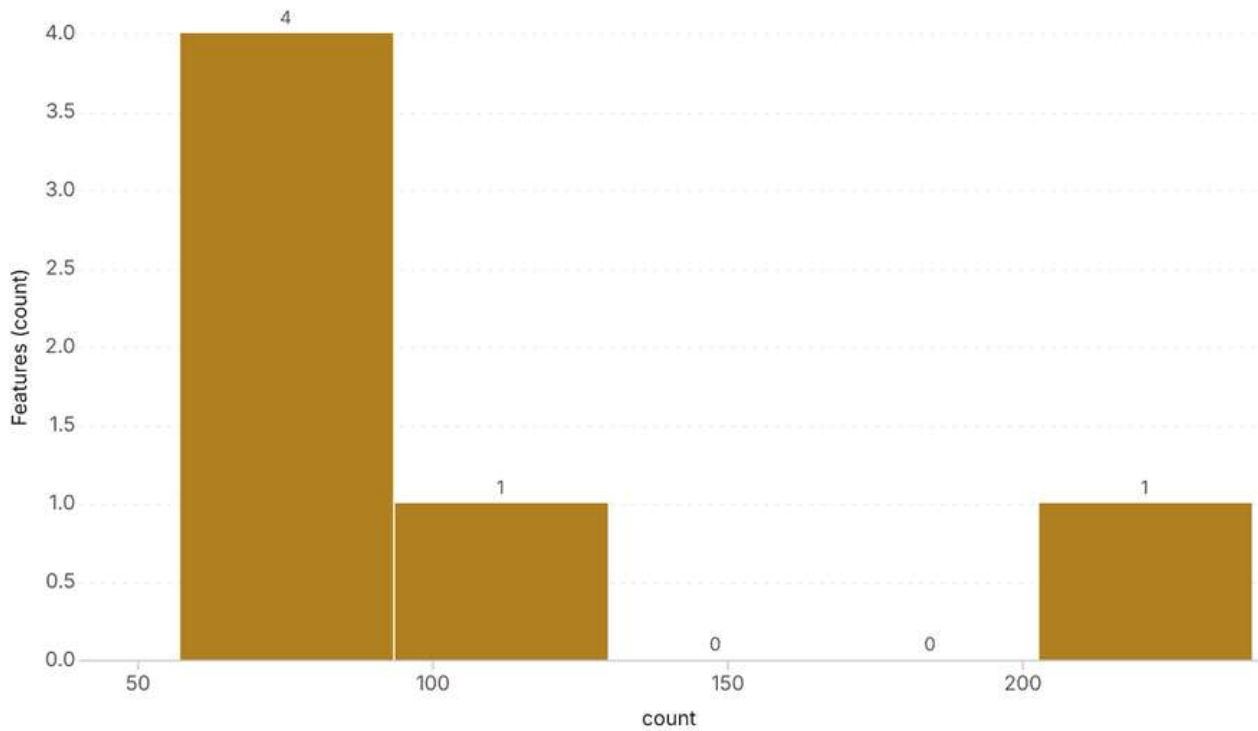


Source: Summarize within: Areas of operation (6 features).

Figure 28. Summarize within: Areas of operation [76]. Source: Summarize within: Areas of operation (6 features). The data is in the appendix.

Distribution of count

6 values in 5 bins



Source: Summarize within: Areas of operation (6 features).

Figure 29. Summarize within: Areas of operation [77]. Source: Summarize within: Areas of operation (6 features). The data is in the appendix.

Cluster sizes

1 clusters over 10 features

cluster	features	share
0	6	60.0%
Noise	4	40.0%

Source: Find point clusters: Observation posts (10 features).

Figure 30. Find point clusters: Observation posts [78]. Source: Find point clusters: Observation posts (10 features). The data is in the appendix.

Cluster sizes

1 clusters over 1 features

cluster	features	share
0	1	100.0%

Source: Find point clusters: cluster hulls (1 features).

Figure 31. Find point clusters: cluster hulls [79]. Source: Find point clusters: cluster hulls (1 features). The data is in the appendix.

Cluster sizes

4 clusters over 90 features

cluster	features	share
2	40	44.4%
1	24	26.7%
0	14	15.6%
3	11	12.2%
Noise	1	1.1%

Period: 2026-08-24 to 2026-10-04 (date). Source: Find point clusters: Obstacles (90 features).

Figure 32. Find point clusters: Obstacles [80]. Period: 2026-08-24 to 2026-10-04 (date). Source: Find point clusters: Obstacles (90 features). The data is in the appendix.

Cluster sizes

4 clusters over 4 features

cluster	features	share
0	1	25.0%
1	1	25.0%
2	1	25.0%
3	1	25.0%

Source: Find point clusters: cluster hulls (4 features).

Figure 33. Find point clusters: cluster hulls [81]. Source: Find point clusters: cluster hulls (4 features). The data is in the appendix.

Cluster sizes

1 clusters over 650 features

cluster	features	share
0	606	93.2%
Noise	44	6.8%

Period: 2026-09-07 to 2026-10-04 (reported_at). Source: Find point clusters: Patrol reports (...)

Figure 34. Find point clusters: Patrol reports [82]. Period: 2026-09-07 to 2026-10-04 (reported_at). Source: Find point clusters: Patrol reports (650 features). The data is in the appendix.

Cluster sizes

1 clusters over 1 features

cluster	features	share
0	1	100.0%

Source: Find point clusters: cluster hulls (1 features).

Figure 35. Find point clusters: cluster hulls [83]. Source: Find point clusters: cluster hulls (1 features). The data is in the appendix.

Distribution of last_z

23 values in 6 bins

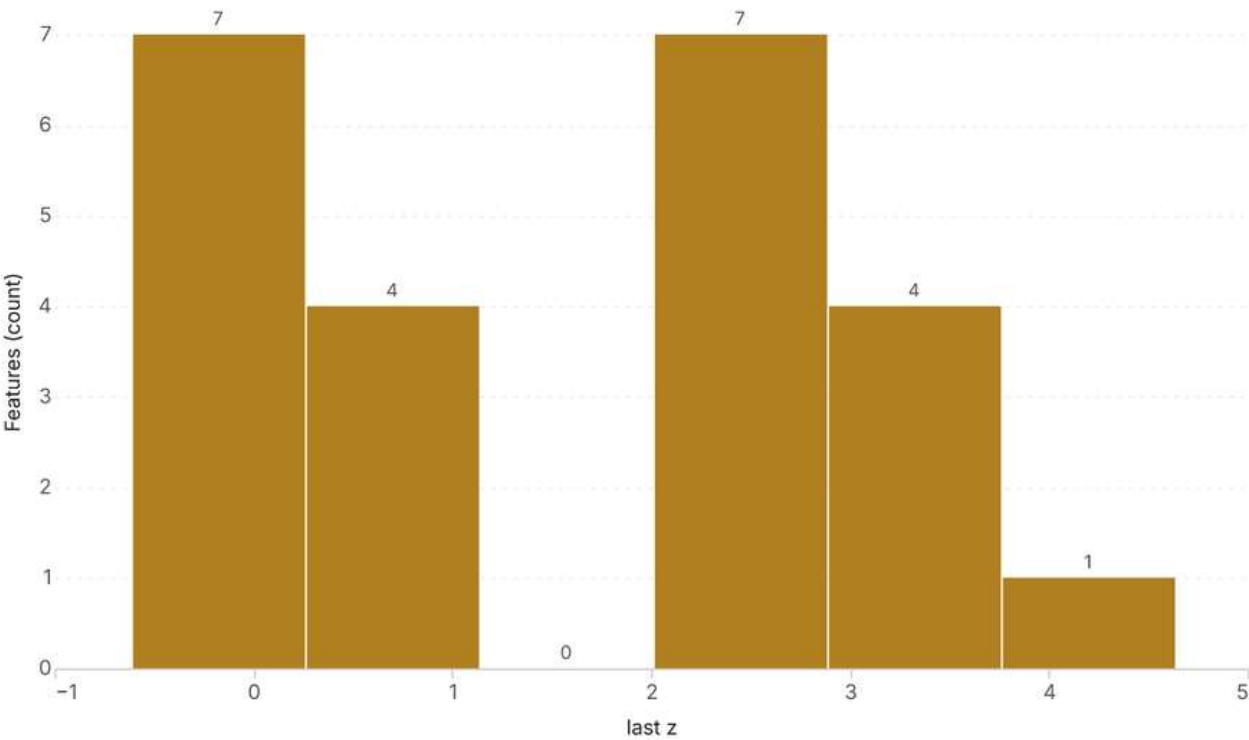
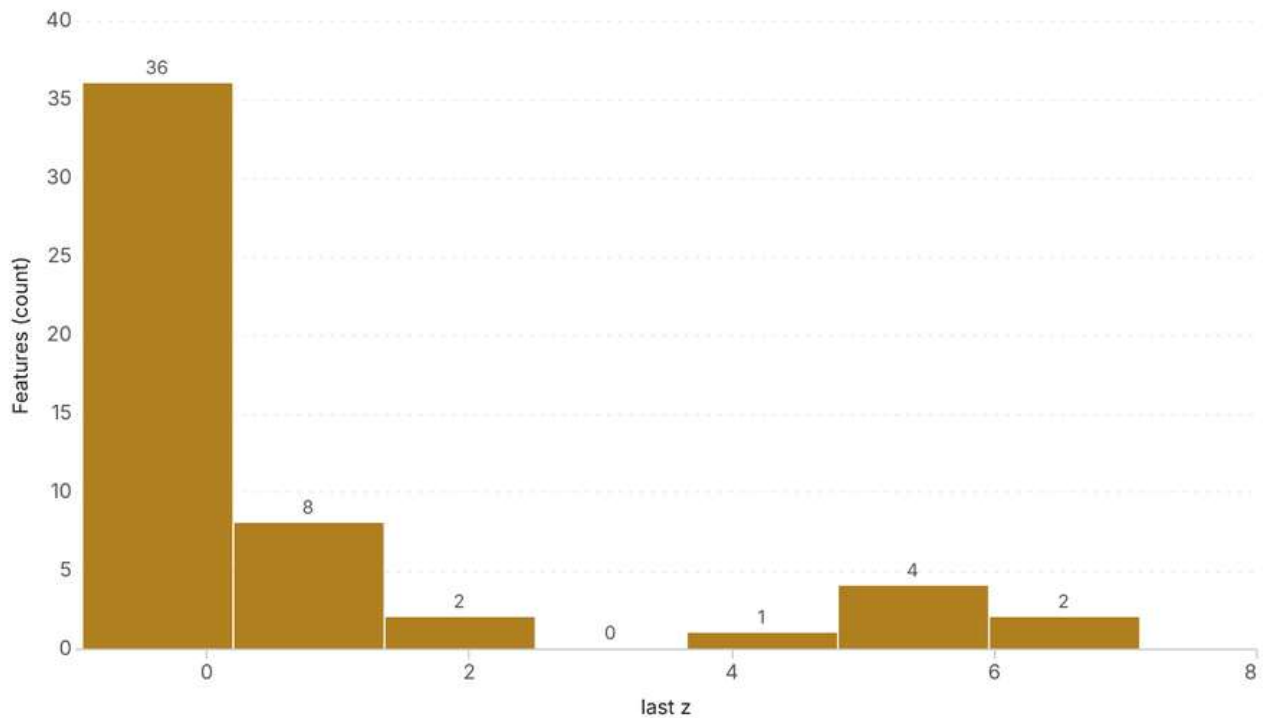


Figure 36. Emerging hot spots: Obstacles [84]. Source: Emerging hot spots: Obstacles (23 features). The data is in the appendix.

Distribution of last_z

53 values in 7 bins

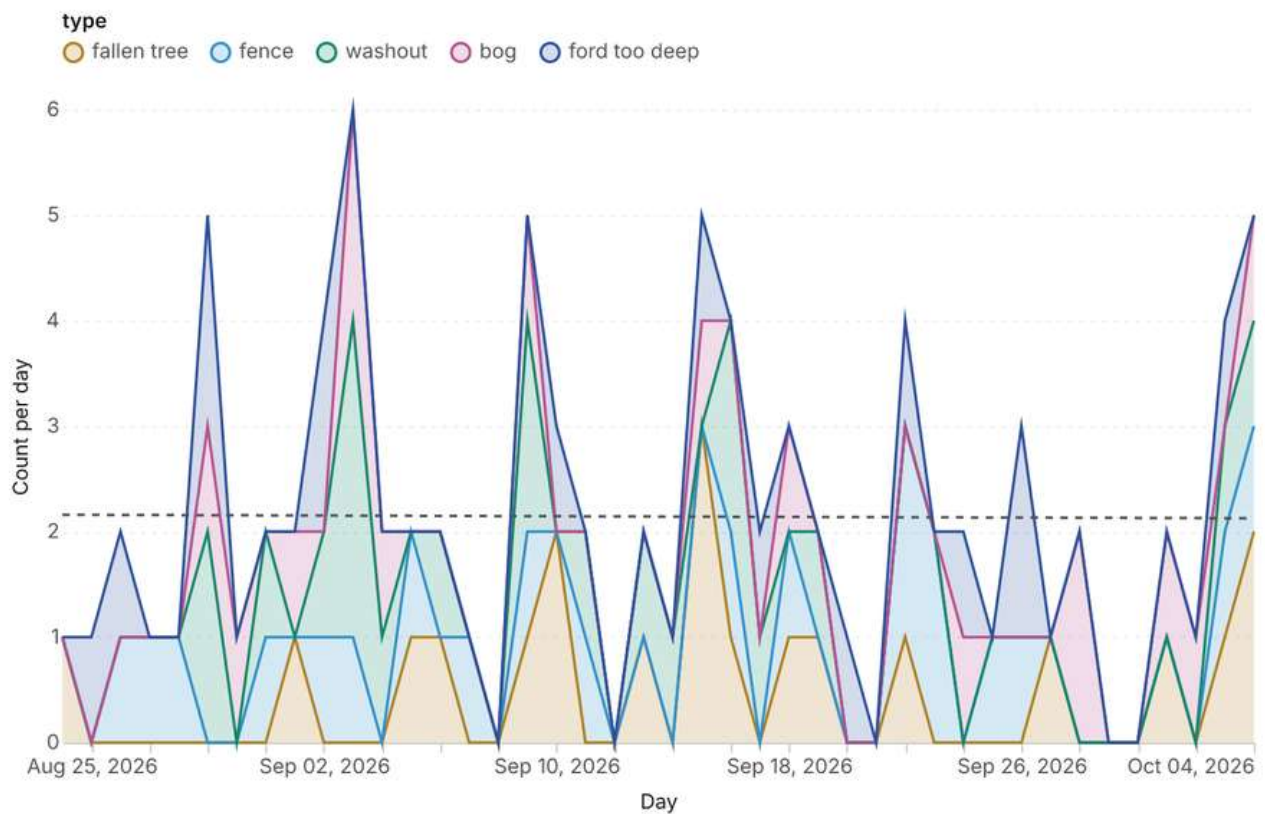


Source: Emerging hot spots: Patrol reports (53 features).

Figure 37. Emerging hot spots: Patrol reports [85]. Source: Emerging hot spots: Patrol reports (53 features). The data is in the appendix.

Count per day by date and type

Per day: 42 days from 2026-08-24 to 2026-10-04; trend -0.00081 per day; first half 45, second half 45 (+0.0%)

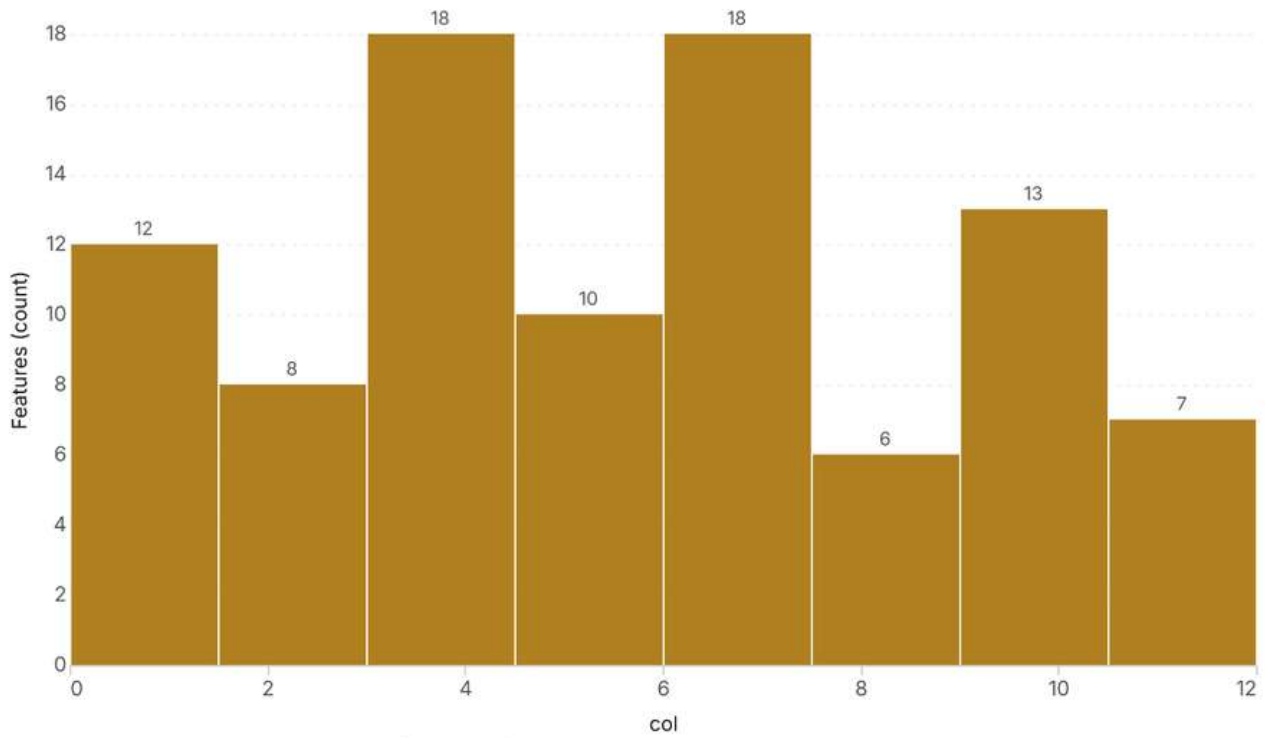


Per day, 2026-08-24 to 2026-10-04. Source: Repeat and near repeat classification: Obstacles (90 features).

Figure 38. Repeat and near repeat classification: Obstacles [86]. Per day, 2026-08-24 to 2026-10-04. Source: Repeat and near repeat classification: Obstacles (90 features). The data is in the appendix.

Distribution of col

92 values in 8 bins

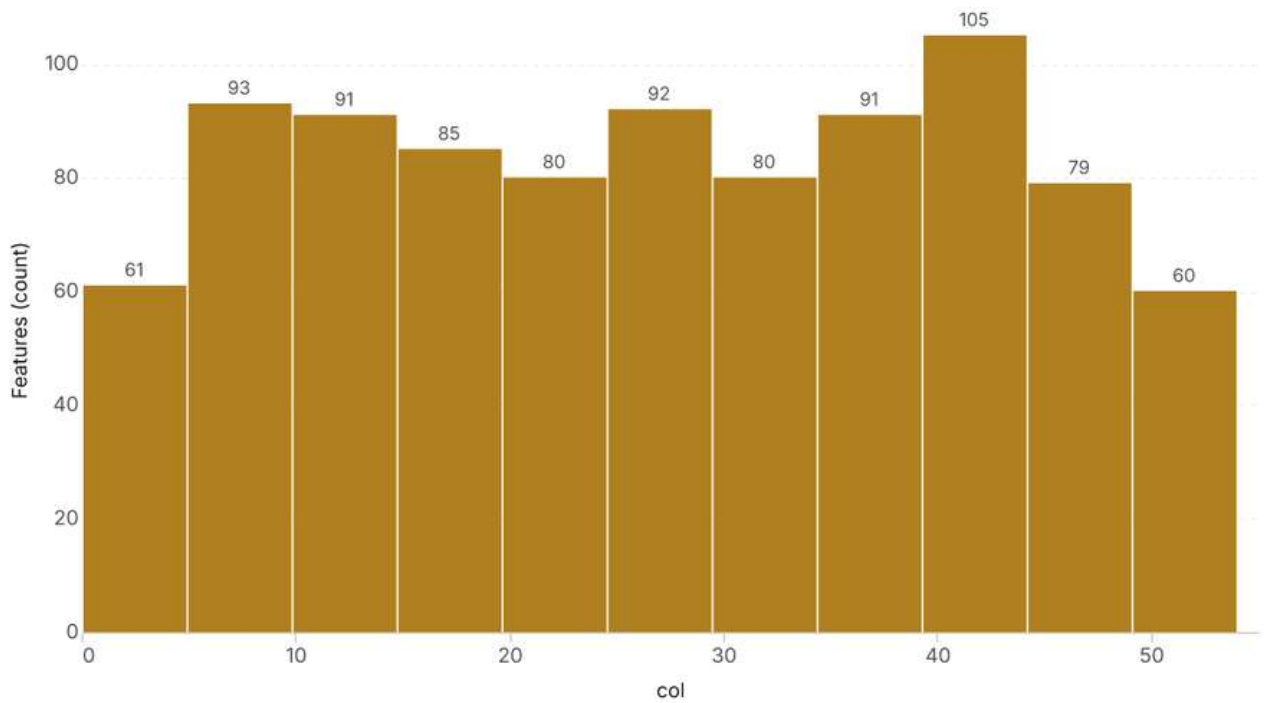


Source: Calculate density: Obstacles (92 features).

Figure 39. Calculate density: Obstacles [87]. Source: Calculate density: Obstacles (92 features). The data is in the appendix.

Distribution of col

917 values in 11 bins



Source: Calculate density: Patrol reports (917 features).

Figure 40. Calculate density: Patrol reports [88]. Source: Calculate density: Patrol reports (917 features). The data is in the appendix.

Distribution of col

307 values in 10 bins

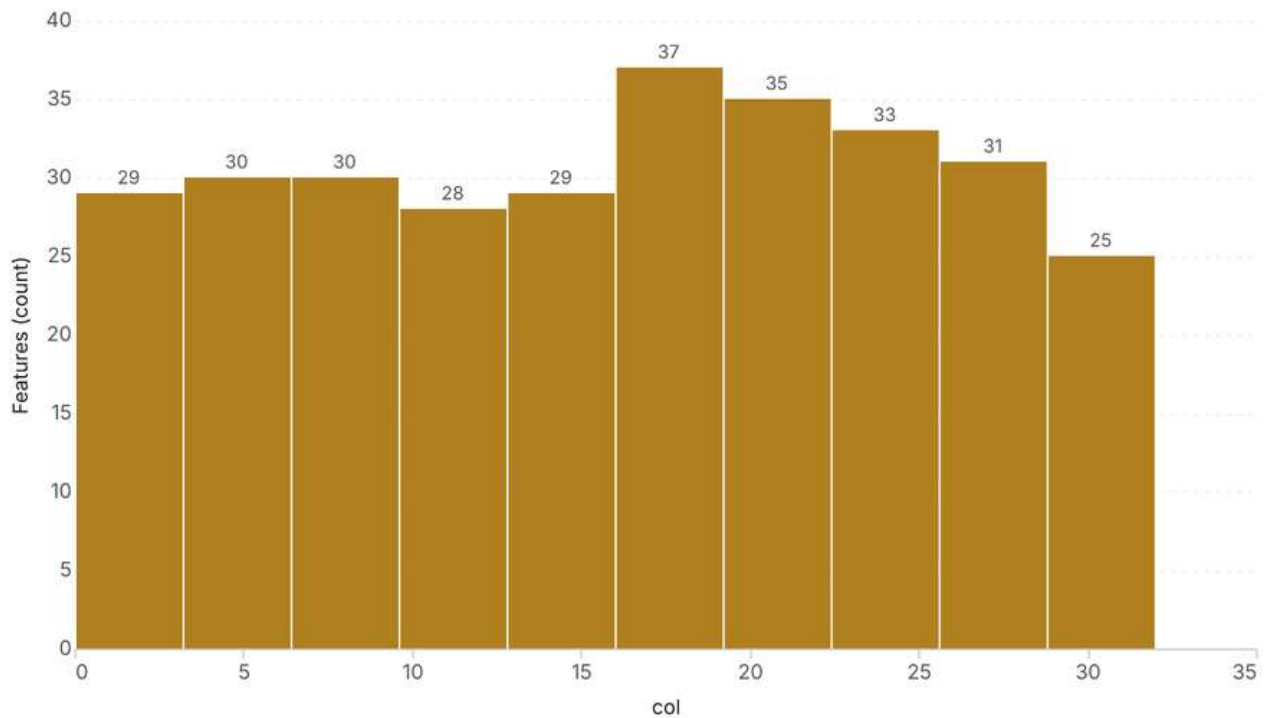


Figure 41. Calculate density: Water crossings [89]. Source: Calculate density: Water crossings (307 features). The data is in the appendix.

Count per day by date and type

Per day: 42 days from 2026-08-24 to 2026-10-04; trend -0.00081 per day; first half 45, second half 45 (+0.0%)

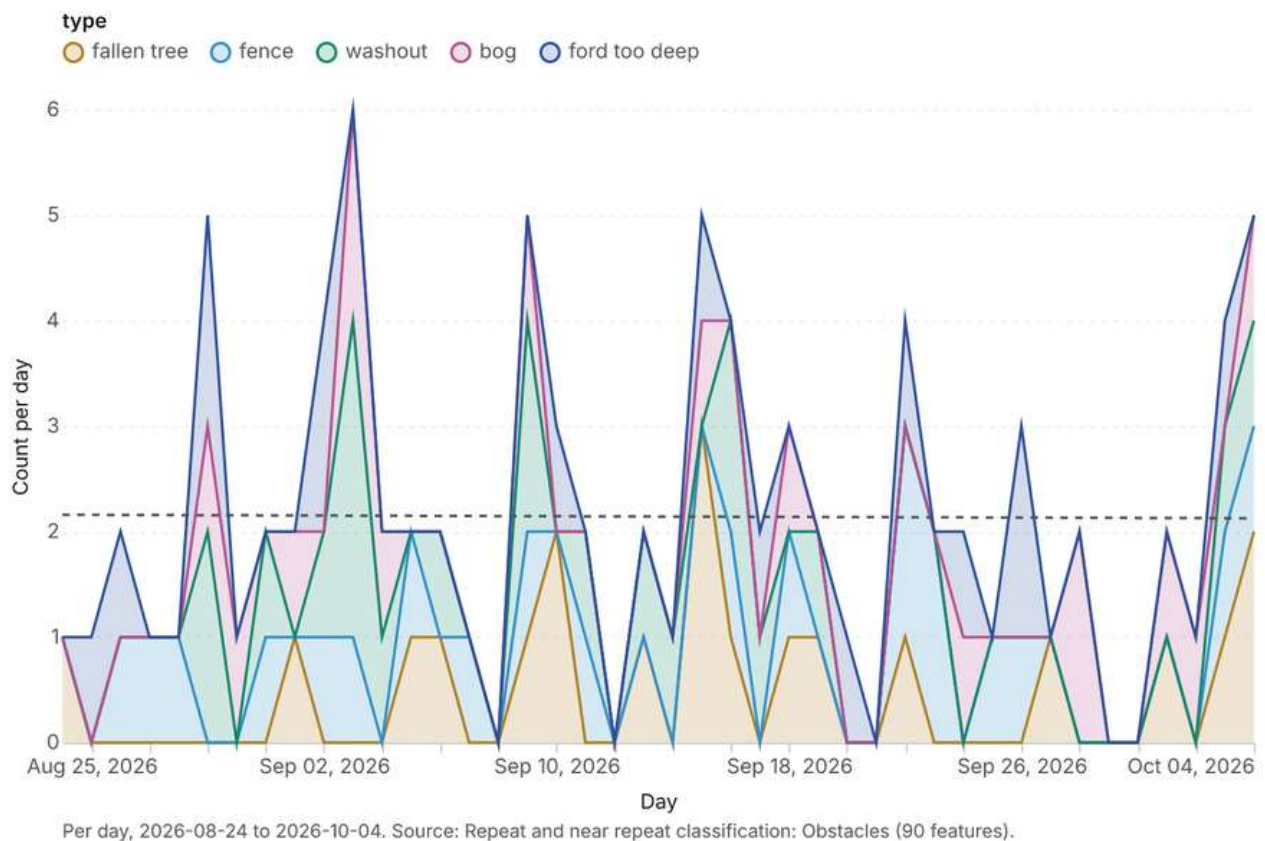


Figure 42. Repeat and near repeat classification: Obstacles over time [90]. Per day, 2026-08-24 to 2026-10-04. Source: Repeat and near repeat classification: Obstacles (90 features). The data is in the appendix.

Count per day by reported_at and type

Per day: 28 days from 2026-09-07 to 2026-10-04; trend +0.0389 per day; first half 318, second half 332 (+4.4%)

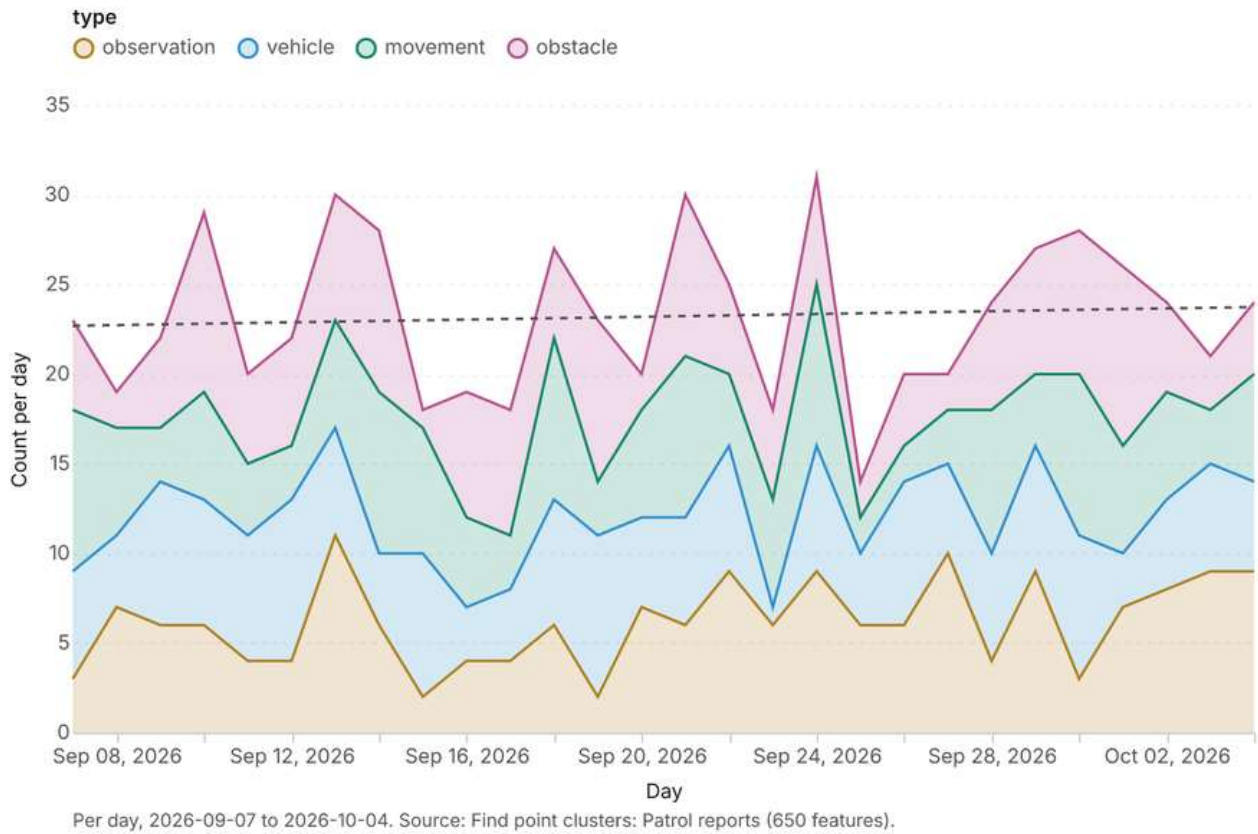


Figure 43. Find point clusters: Patrol reports over time [91]. Per day, 2026-09-07 to 2026-10-04. Source: Find point clusters: Patrol reports (650 features). The data is in the appendix.

Count per day by date and type

Per day: 42 days from 2026-08-24 to 2026-10-04; trend -0.00081 per day; first half 45, second half 45 (+0.0%)

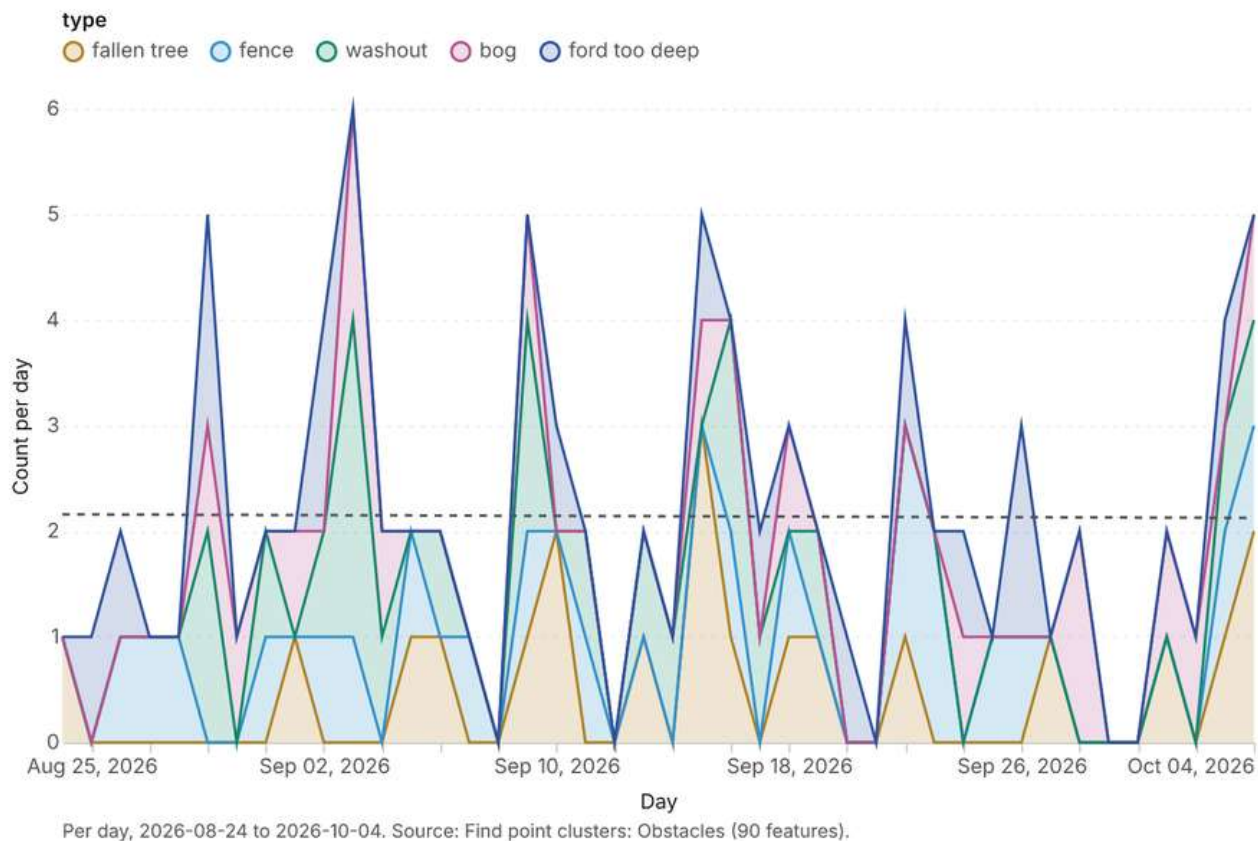


Figure 44. Find point clusters: Obstacles over time [92]. Per day, 2026-08-24 to 2026-10-04. Source: Find point clusters: Obstacles (90 features). The data is in the appendix.

Changes since the last run

This is the first report of this project.

Sources

- [1] Rendering: Chart: Timeline: events per day by dataset. 126 rows (id a075601f-8af4-4c36-b946-28a1dfddb7fe)
- [2] Dataset: Patrol reports. vector, 650 rows (id c25eb5cb-2e9d-49b2-9627-f99a5f226a66)
- [3] Dataset: Obstacles. vector, 90 rows (id 9d65a5e4-b04a-4392-a9de-b8effe3904cf)
- [4] Dataset: Patrol log. table, 180 rows (id 955d11b9-aa3e-47bb-9ff6-b65e6ac4fa73)
- [5] Catalog: Hot spot analysis (operation catalog, gp_hot_spots). Getis-Ord Gi* hot and cold spots with z-scores, p-values and confidence bins. ArcGIS: Find Hot Spots, Hot Spot Analysis (Getis-Ord Gi*). QGIS: qgis:hotspot (plugin). (id gp_hot_spots)
- [6] Plan: Hot spots of Obstacles (the Start plan's candidate c_1654b7ad37e0). 90 points: Getis-Ord Gi* tests whether the concentrations in Obstacles are statistically significant. (id 3357fd3d-8b81-4a47-98ef-82353b0fc69a:c_1654b7ad37e0)
- [7] Tool result: gp_hot_spots, step 0. Hot spot analysis: 1 layer saved: Hot spot analysis: Obstacles (17 features). (id c02bea9a-84b4-471a-af11-fcc136bfd834:0)
- [8] Layer: Obstacles. 90 features (id 10e309c5-03a3-4ad1-ae11-ae448d606dc2)
- [9] Plan: Hot spots of Patrol reports (the Start plan's candidate c_76128ed5dc0). 650 points: Getis-Ord Gi* tests whether the concentrations in Patrol reports are statistically significant. (id 3357fd3d-8b81-4a47-98ef-82353b0fc69a:c_76128ed5dc0)
- [10] Tool result: gp_hot_spots, step 1. Hot spot analysis: 1 layer saved: Hot spot analysis: Patrol reports (154 features). (id c02bea9a-84b4-471a-af11-fcc136bfd834:1)
- [11] Layer: Patrol reports. 650 features (id 5e87153f-3c7f-4d6a-8b1b-b4466de16a73)
- [12] Catalog: Summarize within (operation catalog, gp_summarize_within). Count and aggregate the features inside each polygon (or bin), proportionally for lines and polygons. ArcGIS: Summarize Within, Aggregate Points. QGIS: native:countpointsinpolygon, native:sumlinelengths. (id gp_summarize_within)

[13] Plan: Observation posts per feature of Areas of operation (the Start plan's candidate c_9615a25895d8). Count Observation posts inside each feature of Areas of operation by manned; the counts map as a choropleth (natural breaks, sequential colors). (id 3357fd3d-8b81-4a47-98ef-82353b0fc69a:c_9615a25895d8)

[14] Tool result: gp_summarize_within, step 0. Summarize within: 1 layer saved: Summarize within: Areas of operation (6 features). (id 708827d4-b092-40cb-a1ae-61f53ad70619:0)

[15] Layer: Observation posts. 10 features (id fd2e56d2-1032-4b2b-9046-8f9286496779)

[16] Layer: Areas of operation. 6 features (id eb593b97-39dd-4550-80e3-2d7a82b95f79)

[17] Tool result: gp_summarize_within, step 1. Summarize within: 1 layer saved: Summarize within: Areas of operation (6 features). (id 708827d4-b092-40cb-a1ae-61f53ad70619:1)

[18] Tool result: gp_summarize_within, step 2. Summarize within: 1 layer saved: Summarize within: Areas of operation (6 features). (id 708827d4-b092-40cb-a1ae-61f53ad70619:2)

[19] Catalog: Find point clusters (operation catalog, gp_find_point_clusters). Density-based clusters (DBSCAN, HDBSCAN or OPTICS, optionally space-time) with hulls and noise. ArcGIS: Find Point Clusters, Density-based Clustering. QGIS: native:dbscanclustering, native:stdbscanclustering. (id gp_find_point_clusters)

[20] Plan: Cluster points of Observation posts (the Start plan's candidate c_7723da134a11). DBSCAN finds dense groups of Observation posts and separates noise. (id 3357fd3d-8b81-4a47-98ef-82353b0fc69a:c_7723da134a11)

[21] Tool result: gp_find_point_clusters, step 0. Find point clusters: 2 layers saved: Find point clusters: Observation posts (10 features); Find point clusters: cluster hulls (1 feature). (id 93f15f4c-77ae-405b-a031-78b5514fb666:0)

[22] Plan: Cluster points of Obstacles (the Start plan's candidate c_98311896c483). DBSCAN finds dense groups of Obstacles and separates noise. (id 3357fd3d-8b81-4a47-98ef-82353b0fc69a:c_98311896c483)

[23] Tool result: gp_find_point_clusters, step 1. Find point clusters: 2 layers saved: Find point clusters: Obstacles (90 features); Find point clusters: cluster hulls (4 features). (id 93f15f4c-77ae-405b-a031-78b5514fb666:1)

[24] Plan: Cluster points of Patrol reports (the Start plan's candidate c_4e02d942d100). DBSCAN finds dense groups of Patrol reports and separates noise. (id 3357fd3d-8b81-4a47-98ef-82353b0fc69a:c_4e02d942d100)

[25] Tool result: gp_find_point_clusters, step 2. Find point clusters: 2 layers saved: Find point clusters: Patrol reports (650 features); Find point clusters: cluster hulls (1 feature). (id 93f15f4c-77ae-405b-a031-78b5514fb666:2)

[26] Catalog: Zonal statistics (analysis catalog, rs_zonal_statistics). count/min/max/mean/std/sum/median/majority per polygon as a table and as GeoJSON. ArcGIS: Zonal Statistics as Table (polygons). (id rs_zonal_statistics)

[27] Plan: Zonal statistics of Training area terrain model (DEM) and Landing zones (the Start plan's candidate c_70866e78d829). Statistics of Training area terrain model (DEM) inside each feature of Landing zones. (id 3357fd3d-8b81-4a47-98ef-82353b0fc69a:c_70866e78d829)

[28] Tool result: rs_zonal_statistics, step 0. Zonal statistics: 6 row(s). zones 6. (id 57fd4b1c-0b21-474c-8fbb-5585fed0e5d0:0)

[29] Tool result: rs_zonal_statistics, step 1. Zonal statistics: 6 row(s). zones 6. (id 57fd4b1c-0b21-474c-8fbb-5585fed0e5d0:1)

[30] Catalog: Slope (analysis catalog, tr_slope). Horn slope in degrees or percent, with the share of ground in six grade classes. ArcGIS: Slope (Spatial Analyst). QGIS: Slope (GDAL DEM). (id tr_slope)

[31] Plan: Slope of Training area terrain model (DEM) (the Start plan's candidate c_5f66d5e2b63c). Slope of the Training area terrain model (DEM) surface. (id 3357fd3d-8b81-4a47-98ef-82353b0fc69a:c_5f66d5e2b63c)

[32] Tool result: tr_slope, step 2. Slope over 80.00 km2: mean 6.45 degrees, max 17.54 degrees; 35% of the ground is steeper than 15%. DEM: Training area terrain model (DEM). Verified: 2 checks passed. (id 57fd4b1c-0b21-474c-8fbb-5585fed0e5d0:2)

[33] Layer: Training area terrain model (DEM). 0 features (id e55808a8-3d73-4245-b822-111fb86d9827)

[34] Catalog: Emerging hot spots (operation catalog, gp_space_time_hot_spots). Where hot spots are new, consecutive, intensifying, persistent, diminishing, sporadic, oscillating or historical over time. ArcGIS: Emerging Hot Spot Analysis, Create Space Time Cube. (id gp_space_time_hot_spots)

[35] Plan: Space time hot spots of Obstacles (the Start plan's candidate c_31f5f28e0062). Obstacles carry dates in 'date': emerging hot spot analysis finds new, intensifying and fading hot spots per day. (id 3357fd3d-8b81-4a47-98ef-82353b0fc69a:c_31f5f28e0062)

[36] Tool result: gp_space_time_hot_spots, step 0. Emerging hot spots: 1 layer saved: Emerging hot spots: Obstacles (23 features). (id f9327690-03fb-4bc8-a73e-29675f948fa0:0)

[37] Plan: Space time hot spots of Patrol reports (the Start plan's candidate c_f4213213eb44). Patrol reports carry dates in 'reported_at': emerging hot spot analysis finds new, intensifying and fading hot spots per day. (id 3357fd3d-8b81-4a47-98ef-82353b0fc69a:c_f4213213eb44)

[38] Tool result: gp_space_time_hot_spots, step 1. Emerging hot spots: 1 layer saved: Emerging hot spots: Patrol reports (53 features). (id f9327690-03fb-4bc8-a73e-29675f948fa0:1)

[39] Catalog: Repeat and near repeat classification (operation catalog, gp_near_repeat). Classify incidents as originators, repeats (same place) or near repeats within a distance and time window, with a Knox test table. ArcGIS: Repeat and Near Repeat Classification, Near Repeat Calculator. (id gp_near_repeat)

[40] Plan: Near repeat of Obstacles (the Start plan's candidate c_d6531d225d6c). Near repeat analysis tests whether Obstacles close in space also follow each other within 4 days. (id 3357fd3d-8b81-4a47-98ef-82353b0fc69a:c_d6531d225d6c)

[41] Tool result: gp_near_repeat, step 2. Repeat and near repeat classification: 1 layer saved: Repeat and near repeat classification: Obstacles (90 features). (id f9327690-03fb-4bc8-a73e-29675f948fa0:2)

[42] Catalog: Calculate density (operation catalog, gp_calculate_density). Kernel density per square kilometer on a grid. ArcGIS: Calculate Density, Kernel Density. QGIS: native:heatmapkerneldensityestimation. (id gp_calculate_density)

[43] Plan: Kernel density of Obstacles (the Start plan's candidate c_f16b85e1e450). 90 points in Obstacles: a density surface shows where they concentrate. (id 3357fd3d-8b81-4a47-98ef-82353b0fc69a:c_f16b85e1e450)

[44] Tool result: gp_calculate_density, step 0. Calculate density: 1 layer saved: Calculate density: Obstacles (92 features). (id 60e730b7-dd00-400a-a140-c96bac46f2c5:0)

[45] Plan: Kernel density of Patrol reports (the Start plan's candidate c_e02ad3b592ff). 650 points in Patrol reports: a density surface shows where they concentrate. (id 3357fd3d-8b81-4a47-98ef-82353b0fc69a:c_e02ad3b592ff)

[46] Tool result: gp_calculate_density, step 1. Calculate density: 1 layer saved: Calculate density: Patrol reports (917 features). (id 60e730b7-dd00-400a-a140-c96bac46f2c5:1)

[47] Plan: Kernel density of Water crossings (the Start plan's candidate c_15ca28f2d2d2). 20 points in Water crossings: a density surface shows where they concentrate. (id 3357fd3d-8b81-4a47-98ef-82353b0fc69a:c_15ca28f2d2d2)

[48] Tool result: gp_calculate_density, step 2. Calculate density: 1 layer saved: Calculate density: Water crossings (307 features). (id 60e730b7-dd00-400a-a140-c96bac46f2c5:2)

[49] Layer: Water crossings. 20 features (id 208d3baf-a4d2-484f-8e16-b9702114da9b)

[50] Rendering: Map: Hot spot analysis: Obstacles (id b36c2235-8c38-40a3-8157-25e56c6a1e0f)

[51] Rendering: Map: Hot spot analysis: Patrol reports (id 5cda70fb-0d99-4a7a-8495-a97496733283)

[52] Rendering: Map: Summarize within: Areas of operation (id 1e1b5d41-642e-48b0-8269-a66c0ef32d78)

[53] Rendering: Map: Summarize within: Areas of operation (id 168d2ce0-cf77-4595-bde8-43e1862982cc)

[54] Rendering: Map: Summarize within: Areas of operation (id 0d8537f4-dd3c-4f73-ab89-6f8174e81d97)

[55] Rendering: Map: Find point clusters: Observation posts (id 70c9dab4-7a4d-4fec-8552-055022f5cbb7)

[56] Rendering: Map: Find point clusters: cluster hulls (id 6236e4ce-4459-48d1-a70d-b79e0117c1ec)

[57] Rendering: Map: Find point clusters: Obstacles (id 563df080-8000-41a7-8a11-a694ccd89b08)

[58] Rendering: Map: Find point clusters: cluster hulls (id e92c0248-744d-4cc3-8589-370dfcad30f2)

[59] Rendering: Map: Find point clusters: Patrol reports (id ab13ea19-de86-4b69-80e0-c8ef4aa30931)

[60] Rendering: Map: Find point clusters: cluster hulls (id 7ca4199b-5d6b-4f23-ab37-2fa1f56526a8)

[61] Rendering: Map: Slope (degrees) (id 6a63c78c-3d1e-4205-a842-31ad40a4b309)

[62] Rendering: Map: Emerging hot spots: Obstacles (id 29d7b2e3-d895-4a09-a771-5fc05603e430)

[63] Rendering: Map: Emerging hot spots: Patrol reports (id 1bc16b89-3c2b-4b82-9207-eb27a894493d)

[64] Rendering: Map: Repeat and near repeat classification: Obstacles (id bcbe80a5-b991-4d6f-96f1-a3139a300291)

[65] Rendering: Map: Calculate density: Obstacles (id 7d62948d-b214-4047-b1cf-5bd2a67def12)

[66] Rendering: Map: Calculate density: Patrol reports (id 250c5714-f0d3-4b1c-9640-dc6880c56e2b)

[67] Rendering: Map: Calculate density: Water crossings (id 7b8c83ac-abff-4e12-ab23-c44d4c789f3d)

[68] Rendering: Map: Landing zones by slope_deg (id 74f2a1da-dfd2-4448-b5de-b8702a8f25d4)

[69] Rendering: Map: Areas of operation by priority (id d834336f-0a25-476c-b121-230662c23d0a)

[70] Rendering: Chart: Patrol reports over time (reported_at). 112 rows (id 07478869-2a69-4581-87e3-17496cf5e136)

[71] Rendering: Chart: Obstacles over time (date). 210 rows (id 9d813213-59c6-4415-82b3-c93e26844b7f)

[72] Rendering: Chart: Patrol log over time (date). 168 rows (id 034a55d7-21be-4129-a31d-9eee119f54f5)

[73] Rendering: Chart: Hot spot analysis: Obstacles. 7 rows (id 72a5d350-6ab1-4962-b0f7-d1bad4f53392)

[74] Rendering: Chart: Hot spot analysis: Patrol reports. 9 rows (id ace8f4ef-f3d3-4b05-a439-cfc49e5df712)

[75] Rendering: Chart: Summarize within: Areas of operation. 5 rows (id eb14ddb9-15a6-48d4-8ae8-f9529a04a3cb)

[76] Rendering: Chart: Summarize within: Areas of operation. 5 rows (id 1eb7527a-597b-41b9-a99a-45938cd7dc50)

[77] Rendering: Chart: Summarize within: Areas of operation. 5 rows (id 792139b3-4b0e-4de4-bd8a-43603bb5f6bd)

[78] Rendering: Chart: Find point clusters: Observation posts. 2 rows (id 534f28e5-77b1-4f4e-acb4-709551f06798)

[79] Rendering: Chart: Find point clusters: cluster hulls. 1 rows (id 97f55bbe-4bbd-44f1-bd3f-936b63a5a2b0)

[80] Rendering: Chart: Find point clusters: Obstacles. 5 rows (id b4e5e438-92bd-4da6-8403-7a4589823441)

[81] Rendering: Chart: Find point clusters: cluster hulls. 4 rows (id b3a2459b-e772-43f2-ab39-976f2ffc561d)

[82] Rendering: Chart: Find point clusters: Patrol reports. 2 rows (id 74922feb-fe7f-4a01-89dc-69b5df2a31d8)

[83] Rendering: Chart: Find point clusters: cluster hulls. 1 rows (id ca1b9fb6-ec2c-401a-b77a-ade3c366594e)

[84] Rendering: Chart: Emerging hot spots: Obstacles. 6 rows (id 7467a03d-7a04-4edd-b500-2571d8ed1ff7)

[85] Rendering: Chart: Emerging hot spots: Patrol reports. 7 rows (id 1cb4af9d-0884-4a75-8acf-df058d69feec)

[86] Rendering: Chart: Repeat and near repeat classification: Obstacles. 210 rows (id 02424072-0bed-4b29-aed1-3ae65502761a)

[87] Rendering: Chart: Calculate density: Obstacles. 8 rows (id 65b9b20c-13c3-4077-83f5-ddb3fa4dbbf1)

[88] Rendering: Chart: Calculate density: Patrol reports. 11 rows (id 732b7459-ac9a-498c-8134-64ac33368d43)

[89] Rendering: Chart: Calculate density: Water crossings. 10 rows (id c5e21893-6553-4771-b9ec-1404e4bde3e4)

[90] Rendering: Chart: Repeat and near repeat classification: Obstacles over time. 210 rows (id 85c408a0-c4a6-494e-889b-9629715d60f3)

[91] Rendering: Chart: Find point clusters: Patrol reports over time. 112 rows (id 2b6755a5-cbe0-4c45-af22-1c437c4c3148)

[92] Rendering: Chart: Find point clusters: Obstacles over time. 210 rows (id 09f78ff6-4149-4a54-a883-9acb717cebb8)

[93] Dataset: Observation posts. vector, 10 rows (id 8f0f1a87-dd0f-4c0b-8acd-1987833c2dfb)

[94] Dataset: Areas of operation. vector, 6 rows (id 57abb88c-382d-49e5-af70-78724688b7aa)

[95] Dataset: Tracks and routes. vector, 10 rows (id fa0f7594-2e32-484b-b0ef-259c88036060)

[96] Dataset: Landing zones. vector, 6 rows (id 1e58cf31-c3d8-4fc1-8126-5d80f9746b7f)

[97] Dataset: Water crossings. vector, 20 rows (id f536fc8e-2668-4ca3-84d6-d0229976802)

[98] Dataset: Training area terrain model (DEM). raster, ? rows (id 4e625b8c-d8a8-495f-bcc1-48bc10c548e6)

[99] Dataset: Unit roster. table, 12 rows (id 9792cc27-8080-4d5c-9bca-d91704c915e7)

[100] Dataset: Exercise orders. document, ? rows (id 4186fc2a-074a-4dee-8f0f-dab84dbe40c0)

[101] Record: Sample: Field operations terrain, Sennybridge (id 9f6aa8f7-f5fe-4630-ab44-f56a90a94683)

[102] Layer: Hot spot analysis: Obstacles. 17 features (id f4dc8e71-227a-4c0d-ad3d-1bf4d7b0007a)

[103] Layer: Hot spot analysis: Patrol reports. 154 features (id 3915a1a8-7346-4d03-aed4-c92fac1c921a)

[104] Layer: Summarize within: Areas of operation. 6 features (id 23f3ae18-b552-4200-8914-682e1fecfaa8)

[105] Layer: Summarize within: Areas of operation. 6 features (id 1f4497dc-e816-43d0-ab77-866fac5cc34c)

[106] Layer: Summarize within: Areas of operation. 6 features (id 727ecbb2-90f8-4fe2-9e60-2c9101f12b0d)

[107] Layer: Find point clusters: Observation posts. 10 features (id 16d6caee-b512-4773-9ba1-66108569c4a9)

[108] Layer: Find point clusters: cluster hulls. 1 features (id 0bdf2a2b-41e8-4e1c-8aa7-7ee0e119ca1b)

[109] Layer: Find point clusters: Obstacles. 90 features (id 0f5f0385-f10d-4121-988c-42dfafc82df7)

[110] Layer: Find point clusters: cluster hulls. 4 features (id 01da6a57-d000-4e39-b882-1f40bb33050d)

[111] Layer: Find point clusters: Patrol reports. 650 features (id 4f52bebf-3f65-4820-866c-85abbe31c6e0)

[112] Layer: Find point clusters: cluster hulls. 1 features (id e3c5e7a6-2962-4719-b63c-271a1f761b44)

[113] Layer: Slope (degrees). 0 features (id 2c8b4aff-3457-42fc-b96c-11c77a0ac8d3)

[114] Layer: Emerging hot spots: Obstacles. 23 features (id ed581997-aff0-48ca-90b6-5aaf76587ff9)

[115] Layer: Emerging hot spots: Patrol reports. 53 features (id 49cb95cf-68cc-4d39-8757-8bec5c021a79)

[116] Layer: Repeat and near repeat classification: Obstacles. 90 features (id 12ba7636-bbf6-4484-b67c-076a475693ee)

[117] Layer: Calculate density: Obstacles. 92 features (id b54dddde-3720-4c5c-8833-27f6868f361e)

[118] Layer: Calculate density: Patrol reports. 917 features (id b5456c96-3d51-4f5f-8e7a-cea776032203)

[119] Layer: Calculate density: Water crossings. 307 features (id 6828b511-9b90-421e-b1c0-82df009bcd2c)

[120] Document: Exercise orders (id a3a42113-5e5d-4af0-bcf8-a95ed08b3dfe)

Appendix: the data behind the charts

Figure 1. Timeline: events per day by dataset [1]

period	series	value
2026-08-24	Patrol reports	0
2026-08-24	Patrol log	0
2026-08-24	Obstacles	1
2026-08-25	Patrol reports	0
2026-08-25	Patrol log	0
2026-08-25	Obstacles	1
2026-08-26	Patrol reports	0
2026-08-26	Patrol log	0
2026-08-26	Obstacles	2
2026-08-27	Patrol reports	0
2026-08-27	Patrol log	0
2026-08-27	Obstacles	1
2026-08-28	Patrol reports	0
2026-08-28	Patrol log	0
2026-08-28	Obstacles	1
2026-08-29	Patrol reports	0
2026-08-29	Patrol log	0
2026-08-29	Obstacles	5
2026-08-30	Patrol reports	0
2026-08-30	Patrol log	0
2026-08-30	Obstacles	1
2026-08-31	Patrol reports	0
2026-08-31	Patrol log	0
2026-08-31	Obstacles	2
2026-09-01	Patrol reports	0
2026-09-01	Patrol log	0
2026-09-01	Obstacles	2
2026-09-02	Patrol reports	0
2026-09-02	Patrol log	0
2026-09-02	Obstacles	4
2026-09-03	Patrol reports	0
2026-09-03	Patrol log	0
2026-09-03	Obstacles	6
2026-09-04	Patrol reports	0
2026-09-04	Patrol log	0
2026-09-04	Obstacles	2
2026-09-05	Patrol reports	0
2026-09-05	Patrol log	0
2026-09-05	Obstacles	2
2026-09-06	Patrol reports	0
2026-09-06	Patrol log	0
2026-09-06	Obstacles	2
2026-09-07	Patrol reports	23

period	series	value
2026-09-07	Patrol log	6
2026-09-07	Obstacles	1
2026-09-08	Patrol reports	19
2026-09-08	Patrol log	4
2026-09-08	Obstacles	0
2026-09-09	Patrol reports	22
2026-09-09	Patrol log	4
2026-09-09	Obstacles	5
2026-09-10	Patrol reports	29
2026-09-10	Patrol log	9
2026-09-10	Obstacles	3
2026-09-11	Patrol reports	20
2026-09-11	Patrol log	4
2026-09-11	Obstacles	2
2026-09-12	Patrol reports	22
2026-09-12	Patrol log	2
2026-09-12	Obstacles	0
2026-09-13	Patrol reports	30
2026-09-13	Patrol log	4
2026-09-13	Obstacles	2
2026-09-14	Patrol reports	28
2026-09-14	Patrol log	9
2026-09-14	Obstacles	1
2026-09-15	Patrol reports	18
2026-09-15	Patrol log	6
2026-09-15	Obstacles	5
2026-09-16	Patrol reports	19
2026-09-16	Patrol log	11
2026-09-16	Obstacles	4
2026-09-17	Patrol reports	18
2026-09-17	Patrol log	8
2026-09-17	Obstacles	2
2026-09-18	Patrol reports	27
2026-09-18	Patrol log	9
2026-09-18	Obstacles	3
2026-09-19	Patrol reports	23
2026-09-19	Patrol log	7
2026-09-19	Obstacles	2
2026-09-20	Patrol reports	20
2026-09-20	Patrol log	6
2026-09-20	Obstacles	1
2026-09-21	Patrol reports	30
2026-09-21	Patrol log	4

period	series	value
2026-09-21	Obstacles	0
2026-09-22	Patrol reports	25
2026-09-22	Patrol log	4
2026-09-22	Obstacles	4
2026-09-23	Patrol reports	18
2026-09-23	Patrol log	7
2026-09-23	Obstacles	2
2026-09-24	Patrol reports	31
2026-09-24	Patrol log	6
2026-09-24	Obstacles	2
2026-09-25	Patrol reports	14
2026-09-25	Patrol log	10
2026-09-25	Obstacles	1
2026-09-26	Patrol reports	20
2026-09-26	Patrol log	7
2026-09-26	Obstacles	3
2026-09-27	Patrol reports	20
2026-09-27	Patrol log	7
2026-09-27	Obstacles	1
2026-09-28	Patrol reports	24
2026-09-28	Patrol log	7
2026-09-28	Obstacles	2
2026-09-29	Patrol reports	27
2026-09-29	Patrol log	5
2026-09-29	Obstacles	0
2026-09-30	Patrol reports	28
2026-09-30	Patrol log	7
2026-09-30	Obstacles	0
2026-10-01	Patrol reports	26
2026-10-01	Patrol log	4
2026-10-01	Obstacles	2
2026-10-02	Patrol reports	24
2026-10-02	Patrol log	7
2026-10-02	Obstacles	1
2026-10-03	Patrol reports	21
2026-10-03	Patrol log	8
2026-10-03	Obstacles	4
2026-10-04	Patrol reports	24
2026-10-04	Patrol log	8
2026-10-04	Obstacles	5

Figure 22. Patrol reports over time (reported_at) [70]

period	series	value
2026-09-07	observation	3

period	series	value
2026-09-07	vehicle	6
2026-09-07	movement	9
2026-09-07	obstacle	5
2026-09-08	observation	7
2026-09-08	vehicle	4
2026-09-08	movement	6
2026-09-08	obstacle	2
2026-09-09	observation	6
2026-09-09	vehicle	8
2026-09-09	movement	3
2026-09-09	obstacle	5
2026-09-10	observation	6
2026-09-10	vehicle	7
2026-09-10	movement	6
2026-09-10	obstacle	10
2026-09-11	observation	4
2026-09-11	vehicle	7
2026-09-11	movement	4
2026-09-11	obstacle	5
2026-09-12	observation	4
2026-09-12	vehicle	9
2026-09-12	movement	3
2026-09-12	obstacle	6
2026-09-13	observation	11
2026-09-13	vehicle	6
2026-09-13	movement	6
2026-09-13	obstacle	7
2026-09-14	observation	6
2026-09-14	vehicle	4
2026-09-14	movement	9
2026-09-14	obstacle	9
2026-09-15	observation	2
2026-09-15	vehicle	8
2026-09-15	movement	7
2026-09-15	obstacle	1
2026-09-16	observation	4
2026-09-16	vehicle	3
2026-09-16	movement	5
2026-09-16	obstacle	7
2026-09-17	observation	4
2026-09-17	vehicle	4
2026-09-17	movement	3
2026-09-17	obstacle	7

period	series	value
2026-09-18	observation	6
2026-09-18	vehicle	7
2026-09-18	movement	9
2026-09-18	obstacle	5
2026-09-19	observation	2
2026-09-19	vehicle	9
2026-09-19	movement	3
2026-09-19	obstacle	9
2026-09-20	observation	7
2026-09-20	vehicle	5
2026-09-20	movement	6
2026-09-20	obstacle	2
2026-09-21	observation	6
2026-09-21	vehicle	6
2026-09-21	movement	9
2026-09-21	obstacle	9
2026-09-22	observation	9
2026-09-22	vehicle	7
2026-09-22	movement	4
2026-09-22	obstacle	5
2026-09-23	observation	6
2026-09-23	vehicle	1
2026-09-23	movement	6
2026-09-23	obstacle	5
2026-09-24	observation	9
2026-09-24	vehicle	7
2026-09-24	movement	9
2026-09-24	obstacle	6
2026-09-25	observation	6
2026-09-25	vehicle	4
2026-09-25	movement	2
2026-09-25	obstacle	2
2026-09-26	observation	6
2026-09-26	vehicle	8
2026-09-26	movement	2
2026-09-26	obstacle	4
2026-09-27	observation	10
2026-09-27	vehicle	5
2026-09-27	movement	3
2026-09-27	obstacle	2
2026-09-28	observation	4
2026-09-28	vehicle	6
2026-09-28	movement	8

period	series	value
2026-09-28	obstacle	6
2026-09-29	observation	9
2026-09-29	vehicle	7
2026-09-29	movement	4
2026-09-29	obstacle	7
2026-09-30	observation	3
2026-09-30	vehicle	8
2026-09-30	movement	9
2026-09-30	obstacle	8
2026-10-01	observation	7
2026-10-01	vehicle	3
2026-10-01	movement	6
2026-10-01	obstacle	10
2026-10-02	observation	8
2026-10-02	vehicle	5
2026-10-02	movement	6
2026-10-02	obstacle	5
2026-10-03	observation	9
2026-10-03	vehicle	6
2026-10-03	movement	3
2026-10-03	obstacle	3
2026-10-04	observation	9
2026-10-04	vehicle	5
2026-10-04	movement	6
2026-10-04	obstacle	4

Figure 23. Obstacles over time (date) [71]

period	series	value
2026-08-24	fallen tree	1
2026-08-24	fence	0
2026-08-24	washout	0
2026-08-24	bog	0
2026-08-24	ford too deep	0
2026-08-25	fallen tree	0
2026-08-25	fence	0
2026-08-25	washout	0
2026-08-25	bog	0
2026-08-25	ford too deep	1
2026-08-26	fallen tree	0
2026-08-26	fence	1
2026-08-26	washout	0
2026-08-26	bog	0
2026-08-26	ford too deep	1
2026-08-27	fallen tree	0

period	series	value
2026-08-27	fence	1
2026-08-27	washout	0
2026-08-27	bog	0
2026-08-27	ford too deep	0
2026-08-28	fallen tree	0
2026-08-28	fence	1
2026-08-28	washout	0
2026-08-28	bog	0
2026-08-28	ford too deep	0
2026-08-29	fallen tree	0
2026-08-29	fence	0
2026-08-29	washout	2
2026-08-29	bog	1
2026-08-29	ford too deep	2
2026-08-30	fallen tree	0
2026-08-30	fence	0
2026-08-30	washout	0
2026-08-30	bog	1
2026-08-30	ford too deep	0
2026-08-31	fallen tree	0
2026-08-31	fence	1
2026-08-31	washout	1
2026-08-31	bog	0
2026-08-31	ford too deep	0
2026-09-01	fallen tree	1
2026-09-01	fence	0
2026-09-01	washout	0
2026-09-01	bog	1
2026-09-01	ford too deep	0
2026-09-02	fallen tree	0
2026-09-02	fence	1
2026-09-02	washout	1
2026-09-02	bog	0
2026-09-02	ford too deep	2
2026-09-03	fallen tree	0
2026-09-03	fence	1
2026-09-03	washout	3
2026-09-03	bog	2
2026-09-03	ford too deep	0
2026-09-04	fallen tree	0
2026-09-04	fence	0
2026-09-04	washout	1
2026-09-04	bog	1

period	series	value
2026-09-04	ford too deep	0
2026-09-05	fallen tree	1
2026-09-05	fence	1
2026-09-05	washout	0
2026-09-05	bog	0
2026-09-05	ford too deep	0
2026-09-06	fallen tree	1
2026-09-06	fence	0
2026-09-06	washout	1
2026-09-06	bog	0
2026-09-06	ford too deep	0
2026-09-07	fallen tree	0
2026-09-07	fence	1
2026-09-07	washout	0
2026-09-07	bog	0
2026-09-07	ford too deep	0
2026-09-08	fallen tree	0
2026-09-08	fence	0
2026-09-08	washout	0
2026-09-08	bog	0
2026-09-08	ford too deep	0
2026-09-09	fallen tree	1
2026-09-09	fence	1
2026-09-09	washout	2
2026-09-09	bog	1
2026-09-09	ford too deep	0
2026-09-10	fallen tree	2
2026-09-10	fence	0
2026-09-10	washout	0
2026-09-10	bog	0
2026-09-10	ford too deep	1
2026-09-11	fallen tree	0
2026-09-11	fence	1
2026-09-11	washout	1
2026-09-11	bog	0
2026-09-11	ford too deep	0
2026-09-12	fallen tree	0
2026-09-12	fence	0
2026-09-12	washout	0
2026-09-12	bog	0
2026-09-12	ford too deep	0
2026-09-13	fallen tree	1
2026-09-13	fence	0

period	series	value
2026-09-13	washout	1
2026-09-13	bog	0
2026-09-13	ford too deep	0
2026-09-14	fallen tree	0
2026-09-14	fence	0
2026-09-14	washout	1
2026-09-14	bog	0
2026-09-14	ford too deep	0
2026-09-15	fallen tree	3
2026-09-15	fence	0
2026-09-15	washout	0
2026-09-15	bog	1
2026-09-15	ford too deep	1
2026-09-16	fallen tree	1
2026-09-16	fence	1
2026-09-16	washout	2
2026-09-16	bog	0
2026-09-16	ford too deep	0
2026-09-17	fallen tree	0
2026-09-17	fence	0
2026-09-17	washout	1
2026-09-17	bog	0
2026-09-17	ford too deep	1
2026-09-18	fallen tree	1
2026-09-18	fence	1
2026-09-18	washout	0
2026-09-18	bog	1
2026-09-18	ford too deep	0
2026-09-19	fallen tree	1
2026-09-19	fence	0
2026-09-19	washout	1
2026-09-19	bog	0
2026-09-19	ford too deep	0
2026-09-20	fallen tree	0
2026-09-20	fence	0
2026-09-20	washout	0
2026-09-20	bog	0
2026-09-20	ford too deep	1
2026-09-21	fallen tree	0
2026-09-21	fence	0
2026-09-21	washout	0
2026-09-21	bog	0
2026-09-21	ford too deep	0

period	series	value
2026-09-22	fallen tree	1
2026-09-22	fence	2
2026-09-22	washout	0
2026-09-22	bog	0
2026-09-22	ford too deep	1
2026-09-23	fallen tree	0
2026-09-23	fence	2
2026-09-23	washout	0
2026-09-23	bog	0
2026-09-23	ford too deep	0
2026-09-24	fallen tree	0
2026-09-24	fence	0
2026-09-24	washout	0
2026-09-24	bog	1
2026-09-24	ford too deep	1
2026-09-25	fallen tree	0
2026-09-25	fence	1
2026-09-25	washout	0
2026-09-25	bog	0
2026-09-25	ford too deep	0
2026-09-26	fallen tree	0
2026-09-26	fence	1
2026-09-26	washout	0
2026-09-26	bog	0
2026-09-26	ford too deep	2
2026-09-27	fallen tree	1
2026-09-27	fence	0
2026-09-27	washout	0
2026-09-27	bog	0
2026-09-27	ford too deep	0
2026-09-28	fallen tree	0
2026-09-28	fence	0
2026-09-28	washout	0
2026-09-28	bog	2
2026-09-28	ford too deep	0
2026-09-29	fallen tree	0
2026-09-29	fence	0
2026-09-29	washout	0
2026-09-29	bog	0
2026-09-29	ford too deep	0
2026-09-30	fallen tree	0
2026-09-30	fence	0
2026-09-30	washout	0

period	series	value
2026-09-30	bog	0
2026-09-30	ford too deep	0
2026-10-01	fallen tree	1
2026-10-01	fence	0
2026-10-01	washout	0
2026-10-01	bog	1
2026-10-01	ford too deep	0
2026-10-02	fallen tree	0
2026-10-02	fence	0
2026-10-02	washout	0
2026-10-02	bog	1
2026-10-02	ford too deep	0
2026-10-03	fallen tree	1
2026-10-03	fence	1
2026-10-03	washout	1
2026-10-03	bog	0
2026-10-03	ford too deep	1
2026-10-04	fallen tree	2
2026-10-04	fence	1
2026-10-04	washout	1
2026-10-04	bog	1
2026-10-04	ford too deep	0

Figure 24. Patrol log over time (date) [72]

period	series	value
2026-09-07	AO2	1
2026-09-07	AO5	2
2026-09-07	AO6	1
2026-09-07	AO4	1
2026-09-07	AO3	0
2026-09-07	Other	1
2026-09-08	AO2	0
2026-09-08	AO5	2
2026-09-08	AO6	2
2026-09-08	AO4	0
2026-09-08	AO3	0
2026-09-08	Other	0
2026-09-09	AO2	1
2026-09-09	AO5	1
2026-09-09	AO6	0
2026-09-09	AO4	0
2026-09-09	AO3	2
2026-09-09	Other	0
2026-09-10	AO2	2

period	series	value
2026-09-10	AO5	2
2026-09-10	AO6	1
2026-09-10	AO4	1
2026-09-10	AO3	2
2026-09-10	Other	1
2026-09-11	AO2	2
2026-09-11	AO5	1
2026-09-11	AO6	0
2026-09-11	AO4	0
2026-09-11	AO3	1
2026-09-11	Other	0
2026-09-12	AO2	1
2026-09-12	AO5	0
2026-09-12	AO6	0
2026-09-12	AO4	0
2026-09-12	AO3	0
2026-09-12	Other	1
2026-09-13	AO2	0
2026-09-13	AO5	0
2026-09-13	AO6	1
2026-09-13	AO4	2
2026-09-13	AO3	0
2026-09-13	Other	1
2026-09-14	AO2	2
2026-09-14	AO5	2
2026-09-14	AO6	1
2026-09-14	AO4	1
2026-09-14	AO3	1
2026-09-14	Other	2
2026-09-15	AO2	1
2026-09-15	AO5	1
2026-09-15	AO6	0
2026-09-15	AO4	0
2026-09-15	AO3	3
2026-09-15	Other	1
2026-09-16	AO2	3
2026-09-16	AO5	2
2026-09-16	AO6	2
2026-09-16	AO4	3
2026-09-16	AO3	0
2026-09-16	Other	1
2026-09-17	AO2	0
2026-09-17	AO5	1

period	series	value
2026-09-17	AO6	3
2026-09-17	AO4	3
2026-09-17	AO3	1
2026-09-17	Other	0
2026-09-18	AO2	2
2026-09-18	AO5	1
2026-09-18	AO6	2
2026-09-18	AO4	0
2026-09-18	AO3	1
2026-09-18	Other	3
2026-09-19	AO2	1
2026-09-19	AO5	1
2026-09-19	AO6	3
2026-09-19	AO4	1
2026-09-19	AO3	0
2026-09-19	Other	1
2026-09-20	AO2	1
2026-09-20	AO5	1
2026-09-20	AO6	3
2026-09-20	AO4	0
2026-09-20	AO3	0
2026-09-20	Other	1
2026-09-21	AO2	0
2026-09-21	AO5	2
2026-09-21	AO6	0
2026-09-21	AO4	0
2026-09-21	AO3	1
2026-09-21	Other	1
2026-09-22	AO2	1
2026-09-22	AO5	2
2026-09-22	AO6	0
2026-09-22	AO4	0
2026-09-22	AO3	1
2026-09-22	Other	0
2026-09-23	AO2	1
2026-09-23	AO5	1
2026-09-23	AO6	1
2026-09-23	AO4	1
2026-09-23	AO3	1
2026-09-23	Other	2
2026-09-24	AO2	3
2026-09-24	AO5	3
2026-09-24	AO6	0

period	series	value
2026-09-24	AO4	0
2026-09-24	AO3	0
2026-09-24	Other	0
2026-09-25	AO2	2
2026-09-25	AO5	1
2026-09-25	AO6	1
2026-09-25	AO4	1
2026-09-25	AO3	3
2026-09-25	Other	2
2026-09-26	AO2	3
2026-09-26	AO5	0
2026-09-26	AO6	0
2026-09-26	AO4	3
2026-09-26	AO3	1
2026-09-26	Other	0
2026-09-27	AO2	1
2026-09-27	AO5	2
2026-09-27	AO6	1
2026-09-27	AO4	2
2026-09-27	AO3	1
2026-09-27	Other	0
2026-09-28	AO2	3
2026-09-28	AO5	1
2026-09-28	AO6	1
2026-09-28	AO4	2
2026-09-28	AO3	0
2026-09-28	Other	0
2026-09-29	AO2	1
2026-09-29	AO5	0
2026-09-29	AO6	1
2026-09-29	AO4	1
2026-09-29	AO3	2
2026-09-29	Other	0
2026-09-30	AO2	2
2026-09-30	AO5	0
2026-09-30	AO6	1
2026-09-30	AO4	2
2026-09-30	AO3	2
2026-09-30	Other	0
2026-10-01	AO2	1
2026-10-01	AO5	0
2026-10-01	AO6	3
2026-10-01	AO4	0

period	series	value
2026-10-01	AO3	0
2026-10-01	Other	0
2026-10-02	AO2	0
2026-10-02	AO5	2
2026-10-02	AO6	1
2026-10-02	AO4	2
2026-10-02	AO3	0
2026-10-02	Other	2
2026-10-03	AO2	2
2026-10-03	AO5	2
2026-10-03	AO6	1
2026-10-03	AO4	2
2026-10-03	AO3	1
2026-10-03	Other	0
2026-10-04	AO2	0
2026-10-04	AO5	1
2026-10-04	AO6	1
2026-10-04	AO4	2
2026-10-04	AO3	1
2026-10-04	Other	3

Figure 25. Hot spot analysis: Obstacles [73]

bin_start	bin_end	band	band_label	count
-1.5	-1	not_significant	Not significant	2
-1	-0.5	not_significant	Not significant	6
-0.5	0	not_significant	Not significant	1
0	0.5	not_significant	Not significant	2
0.5	1	not_significant	Not significant	3
1	1.5	not_significant	Not significant	2
2	2.5	hot_95	Hot spot, 95% confidence	1

Figure 26. Hot spot analysis: Patrol reports [74]

bin_start	bin_end	band	band_label	count
-1	-0.5	not_significant	Not significant	44
-0.5	0	not_significant	Not significant	59
0	0.5	not_significant	Not significant	26
0.5	1	not_significant	Not significant	12
1	1.5	not_significant	Not significant	6
1.5	2	hot_90	Hot spot, 90% confidence	2
3.5	4	hot_99	Hot spot, 99% confidence	1
4.5	5	hot_99	Hot spot, 99% confidence	3

bin_start	bin_end	band	band_label	count
5	5.5	hot_99	Hot spot, 99% confidence	1

Figure 27. Summarize within: Areas of operation [75]

bin_start	bin_end	count
1	1.2	2
1.2	1.4	0
1.4	1.6	0
1.6	1.8	0
1.8	2	4

Figure 28. Summarize within: Areas of operation [76]

bin_start	bin_end	count
0	7.4	2
7.4	14.8	0
14.8	22.2	3
22.2	29.6	0
29.6	37	1

Figure 29. Summarize within: Areas of operation [77]

bin_start	bin_end	count
57	93.4	4
93.4	129.8	1
129.8	166.2	0
166.2	202.6	0
202.6	239	1

Figure 30. Find point clusters: Observation posts [78]

cluster	features	fraction	share
0	6	0.6	60.0%
Noise	4	0.4	40.0%

Figure 31. Find point clusters: cluster hulls [79]

cluster	features	fraction	share
0	1	1	100.0%

Figure 32. Find point clusters: Obstacles [80]

cluster	features	fraction	share
2	40	0.4444	44.4%
1	24	0.2667	26.7%
0	14	0.1556	15.6%
3	11	0.1222	12.2%
Noise	1	0.01111	1.1%

Figure 33. Find point clusters: cluster hulls [81]

cluster	features	fraction	share
0	1	0.25	25.0%

cluster	features	fraction	share
1	1	0.25	25.0%
2	1	0.25	25.0%
3	1	0.25	25.0%

Figure 34. Find point clusters: Patrol reports [82]

cluster	features	fraction	share
0	606	0.9323	93.2%
Noise	44	0.06769	6.8%

Figure 35. Find point clusters: cluster hulls [83]

cluster	features	fraction	share
0	1	1	100.0%

Figure 36. Emerging hot spots: Obstacles [84]

bin_start	bin_end	count
-0.615	0.2598	7
0.2598	1.135	4
1.135	2.01	0
2.01	2.884	7
2.884	3.759	4
3.759	4.634	1

Figure 37. Emerging hot spots: Patrol reports [85]

bin_start	bin_end	count
-0.949	0.2023	36
0.2023	1.354	8
1.354	2.505	2
2.505	3.656	0
3.656	4.807	1
4.807	5.959	4
5.959	7.11	2

Figure 38. Repeat and near repeat classification: Obstacles [86]

period	series	value
2026-08-24	fallen tree	1
2026-08-24	fence	0
2026-08-24	washout	0
2026-08-24	bog	0
2026-08-24	ford too deep	0
2026-08-25	fallen tree	0
2026-08-25	fence	0
2026-08-25	washout	0
2026-08-25	bog	0
2026-08-25	ford too deep	1
2026-08-26	fallen tree	0
2026-08-26	fence	1

period	series	value
2026-08-26	washout	0
2026-08-26	bog	0
2026-08-26	ford too deep	1
2026-08-27	fallen tree	0
2026-08-27	fence	1
2026-08-27	washout	0
2026-08-27	bog	0
2026-08-27	ford too deep	0
2026-08-28	fallen tree	0
2026-08-28	fence	1
2026-08-28	washout	0
2026-08-28	bog	0
2026-08-28	ford too deep	0
2026-08-29	fallen tree	0
2026-08-29	fence	0
2026-08-29	washout	2
2026-08-29	bog	1
2026-08-29	ford too deep	2
2026-08-30	fallen tree	0
2026-08-30	fence	0
2026-08-30	washout	0
2026-08-30	bog	1
2026-08-30	ford too deep	0
2026-08-31	fallen tree	0
2026-08-31	fence	1
2026-08-31	washout	1
2026-08-31	bog	0
2026-08-31	ford too deep	0
2026-09-01	fallen tree	1
2026-09-01	fence	0
2026-09-01	washout	0
2026-09-01	bog	1
2026-09-01	ford too deep	0
2026-09-02	fallen tree	0
2026-09-02	fence	1
2026-09-02	washout	1
2026-09-02	bog	0
2026-09-02	ford too deep	2
2026-09-03	fallen tree	0
2026-09-03	fence	1
2026-09-03	washout	3
2026-09-03	bog	2
2026-09-03	ford too deep	0

period	series	value
2026-09-04	fallen tree	0
2026-09-04	fence	0
2026-09-04	washout	1
2026-09-04	bog	1
2026-09-04	ford too deep	0
2026-09-05	fallen tree	1
2026-09-05	fence	1
2026-09-05	washout	0
2026-09-05	bog	0
2026-09-05	ford too deep	0
2026-09-06	fallen tree	1
2026-09-06	fence	0
2026-09-06	washout	1
2026-09-06	bog	0
2026-09-06	ford too deep	0
2026-09-07	fallen tree	0
2026-09-07	fence	1
2026-09-07	washout	0
2026-09-07	bog	0
2026-09-07	ford too deep	0
2026-09-08	fallen tree	0
2026-09-08	fence	0
2026-09-08	washout	0
2026-09-08	bog	0
2026-09-08	ford too deep	0
2026-09-09	fallen tree	1
2026-09-09	fence	1
2026-09-09	washout	2
2026-09-09	bog	1
2026-09-09	ford too deep	0
2026-09-10	fallen tree	2
2026-09-10	fence	0
2026-09-10	washout	0
2026-09-10	bog	0
2026-09-10	ford too deep	1
2026-09-11	fallen tree	0
2026-09-11	fence	1
2026-09-11	washout	1
2026-09-11	bog	0
2026-09-11	ford too deep	0
2026-09-12	fallen tree	0
2026-09-12	fence	0
2026-09-12	washout	0

period	series	value
2026-09-12	bog	0
2026-09-12	ford too deep	0
2026-09-13	fallen tree	1
2026-09-13	fence	0
2026-09-13	washout	1
2026-09-13	bog	0
2026-09-13	ford too deep	0
2026-09-14	fallen tree	0
2026-09-14	fence	0
2026-09-14	washout	1
2026-09-14	bog	0
2026-09-14	ford too deep	0
2026-09-15	fallen tree	3
2026-09-15	fence	0
2026-09-15	washout	0
2026-09-15	bog	1
2026-09-15	ford too deep	1
2026-09-16	fallen tree	1
2026-09-16	fence	1
2026-09-16	washout	2
2026-09-16	bog	0
2026-09-16	ford too deep	0
2026-09-17	fallen tree	0
2026-09-17	fence	0
2026-09-17	washout	1
2026-09-17	bog	0
2026-09-17	ford too deep	1
2026-09-18	fallen tree	1
2026-09-18	fence	1
2026-09-18	washout	0
2026-09-18	bog	1
2026-09-18	ford too deep	0
2026-09-19	fallen tree	1
2026-09-19	fence	0
2026-09-19	washout	1
2026-09-19	bog	0
2026-09-19	ford too deep	0
2026-09-20	fallen tree	0
2026-09-20	fence	0
2026-09-20	washout	0
2026-09-20	bog	0
2026-09-20	ford too deep	1
2026-09-21	fallen tree	0

period	series	value
2026-09-21	fence	0
2026-09-21	washout	0
2026-09-21	bog	0
2026-09-21	ford too deep	0
2026-09-22	fallen tree	1
2026-09-22	fence	2
2026-09-22	washout	0
2026-09-22	bog	0
2026-09-22	ford too deep	1
2026-09-23	fallen tree	0
2026-09-23	fence	2
2026-09-23	washout	0
2026-09-23	bog	0
2026-09-23	ford too deep	0
2026-09-24	fallen tree	0
2026-09-24	fence	0
2026-09-24	washout	0
2026-09-24	bog	1
2026-09-24	ford too deep	1
2026-09-25	fallen tree	0
2026-09-25	fence	1
2026-09-25	washout	0
2026-09-25	bog	0
2026-09-25	ford too deep	0
2026-09-26	fallen tree	0
2026-09-26	fence	1
2026-09-26	washout	0
2026-09-26	bog	0
2026-09-26	ford too deep	2
2026-09-27	fallen tree	1
2026-09-27	fence	0
2026-09-27	washout	0
2026-09-27	bog	0
2026-09-27	ford too deep	0
2026-09-28	fallen tree	0
2026-09-28	fence	0
2026-09-28	washout	0
2026-09-28	bog	2
2026-09-28	ford too deep	0
2026-09-29	fallen tree	0
2026-09-29	fence	0
2026-09-29	washout	0
2026-09-29	bog	0

period	series	value
2026-09-29	ford too deep	0
2026-09-30	fallen tree	0
2026-09-30	fence	0
2026-09-30	washout	0
2026-09-30	bog	0
2026-09-30	ford too deep	0
2026-10-01	fallen tree	1
2026-10-01	fence	0
2026-10-01	washout	0
2026-10-01	bog	1
2026-10-01	ford too deep	0
2026-10-02	fallen tree	0
2026-10-02	fence	0
2026-10-02	washout	0
2026-10-02	bog	1
2026-10-02	ford too deep	0
2026-10-03	fallen tree	1
2026-10-03	fence	1
2026-10-03	washout	1
2026-10-03	bog	0
2026-10-03	ford too deep	1
2026-10-04	fallen tree	2
2026-10-04	fence	1
2026-10-04	washout	1
2026-10-04	bog	1
2026-10-04	ford too deep	0

Figure 39. Calculate density: Obstacles [87]

bin_start	bin_end	count
0	1.5	12
1.5	3	8
3	4.5	18
4.5	6	10
6	7.5	18
7.5	9	6
9	10.5	13
10.5	12	7

Figure 40. Calculate density: Patrol reports [88]

bin_start	bin_end	count
0	4.909	61
4.909	9.818	93
9.818	14.73	91
14.73	19.64	85

bin_start	bin_end	count
19.64	24.55	80
24.55	29.45	92
29.45	34.36	80
34.36	39.27	91
39.27	44.18	105
44.18	49.09	79
49.09	54	60

Figure 41. Calculate density: Water crossings [89]

bin_start	bin_end	count
0	3.2	29
3.2	6.4	30
6.4	9.6	30
9.6	12.8	28
12.8	16	29
16	19.2	37
19.2	22.4	35
22.4	25.6	33
25.6	28.8	31
28.8	32	25

Figure 42. Repeat and near repeat classification: Obstacles over time [90]

period	series	value
2026-08-24	fallen tree	1
2026-08-24	fence	0
2026-08-24	washout	0
2026-08-24	bog	0
2026-08-24	ford too deep	0
2026-08-25	fallen tree	0
2026-08-25	fence	0
2026-08-25	washout	0
2026-08-25	bog	0
2026-08-25	ford too deep	1
2026-08-26	fallen tree	0
2026-08-26	fence	1
2026-08-26	washout	0
2026-08-26	bog	0
2026-08-26	ford too deep	1
2026-08-27	fallen tree	0
2026-08-27	fence	1
2026-08-27	washout	0
2026-08-27	bog	0
2026-08-27	ford too deep	0
2026-08-28	fallen tree	0

period	series	value
2026-08-28	fence	1
2026-08-28	washout	0
2026-08-28	bog	0
2026-08-28	ford too deep	0
2026-08-29	fallen tree	0
2026-08-29	fence	0
2026-08-29	washout	2
2026-08-29	bog	1
2026-08-29	ford too deep	2
2026-08-30	fallen tree	0
2026-08-30	fence	0
2026-08-30	washout	0
2026-08-30	bog	1
2026-08-30	ford too deep	0
2026-08-31	fallen tree	0
2026-08-31	fence	1
2026-08-31	washout	1
2026-08-31	bog	0
2026-08-31	ford too deep	0
2026-09-01	fallen tree	1
2026-09-01	fence	0
2026-09-01	washout	0
2026-09-01	bog	1
2026-09-01	ford too deep	0
2026-09-02	fallen tree	0
2026-09-02	fence	1
2026-09-02	washout	1
2026-09-02	bog	0
2026-09-02	ford too deep	2
2026-09-03	fallen tree	0
2026-09-03	fence	1
2026-09-03	washout	3
2026-09-03	bog	2
2026-09-03	ford too deep	0
2026-09-04	fallen tree	0
2026-09-04	fence	0
2026-09-04	washout	1
2026-09-04	bog	1
2026-09-04	ford too deep	0
2026-09-05	fallen tree	1
2026-09-05	fence	1
2026-09-05	washout	0
2026-09-05	bog	0

period	series	value
2026-09-05	ford too deep	0
2026-09-06	fallen tree	1
2026-09-06	fence	0
2026-09-06	washout	1
2026-09-06	bog	0
2026-09-06	ford too deep	0
2026-09-07	fallen tree	0
2026-09-07	fence	1
2026-09-07	washout	0
2026-09-07	bog	0
2026-09-07	ford too deep	0
2026-09-08	fallen tree	0
2026-09-08	fence	0
2026-09-08	washout	0
2026-09-08	bog	0
2026-09-08	ford too deep	0
2026-09-09	fallen tree	1
2026-09-09	fence	1
2026-09-09	washout	2
2026-09-09	bog	1
2026-09-09	ford too deep	0
2026-09-10	fallen tree	2
2026-09-10	fence	0
2026-09-10	washout	0
2026-09-10	bog	0
2026-09-10	ford too deep	1
2026-09-11	fallen tree	0
2026-09-11	fence	1
2026-09-11	washout	1
2026-09-11	bog	0
2026-09-11	ford too deep	0
2026-09-12	fallen tree	0
2026-09-12	fence	0
2026-09-12	washout	0
2026-09-12	bog	0
2026-09-12	ford too deep	0
2026-09-13	fallen tree	1
2026-09-13	fence	0
2026-09-13	washout	1
2026-09-13	bog	0
2026-09-13	ford too deep	0
2026-09-14	fallen tree	0
2026-09-14	fence	0

period	series	value
2026-09-14	washout	1
2026-09-14	bog	0
2026-09-14	ford too deep	0
2026-09-15	fallen tree	3
2026-09-15	fence	0
2026-09-15	washout	0
2026-09-15	bog	1
2026-09-15	ford too deep	1
2026-09-16	fallen tree	1
2026-09-16	fence	1
2026-09-16	washout	2
2026-09-16	bog	0
2026-09-16	ford too deep	0
2026-09-17	fallen tree	0
2026-09-17	fence	0
2026-09-17	washout	1
2026-09-17	bog	0
2026-09-17	ford too deep	1
2026-09-18	fallen tree	1
2026-09-18	fence	1
2026-09-18	washout	0
2026-09-18	bog	1
2026-09-18	ford too deep	0
2026-09-19	fallen tree	1
2026-09-19	fence	0
2026-09-19	washout	1
2026-09-19	bog	0
2026-09-19	ford too deep	0
2026-09-20	fallen tree	0
2026-09-20	fence	0
2026-09-20	washout	0
2026-09-20	bog	0
2026-09-20	ford too deep	1
2026-09-21	fallen tree	0
2026-09-21	fence	0
2026-09-21	washout	0
2026-09-21	bog	0
2026-09-21	ford too deep	0
2026-09-22	fallen tree	1
2026-09-22	fence	2
2026-09-22	washout	0
2026-09-22	bog	0
2026-09-22	ford too deep	1

period	series	value
2026-09-23	fallen tree	0
2026-09-23	fence	2
2026-09-23	washout	0
2026-09-23	bog	0
2026-09-23	ford too deep	0
2026-09-24	fallen tree	0
2026-09-24	fence	0
2026-09-24	washout	0
2026-09-24	bog	1
2026-09-24	ford too deep	1
2026-09-25	fallen tree	0
2026-09-25	fence	1
2026-09-25	washout	0
2026-09-25	bog	0
2026-09-25	ford too deep	0
2026-09-26	fallen tree	0
2026-09-26	fence	1
2026-09-26	washout	0
2026-09-26	bog	0
2026-09-26	ford too deep	2
2026-09-27	fallen tree	1
2026-09-27	fence	0
2026-09-27	washout	0
2026-09-27	bog	0
2026-09-27	ford too deep	0
2026-09-28	fallen tree	0
2026-09-28	fence	0
2026-09-28	washout	0
2026-09-28	bog	2
2026-09-28	ford too deep	0
2026-09-29	fallen tree	0
2026-09-29	fence	0
2026-09-29	washout	0
2026-09-29	bog	0
2026-09-29	ford too deep	0
2026-09-30	fallen tree	0
2026-09-30	fence	0
2026-09-30	washout	0
2026-09-30	bog	0
2026-09-30	ford too deep	0
2026-10-01	fallen tree	1
2026-10-01	fence	0
2026-10-01	washout	0

period	series	value
2026-10-01	bog	1
2026-10-01	ford too deep	0
2026-10-02	fallen tree	0
2026-10-02	fence	0
2026-10-02	washout	0
2026-10-02	bog	1
2026-10-02	ford too deep	0
2026-10-03	fallen tree	1
2026-10-03	fence	1
2026-10-03	washout	1
2026-10-03	bog	0
2026-10-03	ford too deep	1
2026-10-04	fallen tree	2
2026-10-04	fence	1
2026-10-04	washout	1
2026-10-04	bog	1
2026-10-04	ford too deep	0

Figure 43. Find point clusters: Patrol reports over time [91]

period	series	value
2026-09-07	observation	3
2026-09-07	vehicle	6
2026-09-07	movement	9
2026-09-07	obstacle	5
2026-09-08	observation	7
2026-09-08	vehicle	4
2026-09-08	movement	6
2026-09-08	obstacle	2
2026-09-09	observation	6
2026-09-09	vehicle	8
2026-09-09	movement	3
2026-09-09	obstacle	5
2026-09-10	observation	6
2026-09-10	vehicle	7
2026-09-10	movement	6
2026-09-10	obstacle	10
2026-09-11	observation	4
2026-09-11	vehicle	7
2026-09-11	movement	4
2026-09-11	obstacle	5
2026-09-12	observation	4
2026-09-12	vehicle	9
2026-09-12	movement	3
2026-09-12	obstacle	6

period	series	value
2026-09-13	observation	11
2026-09-13	vehicle	6
2026-09-13	movement	6
2026-09-13	obstacle	7
2026-09-14	observation	6
2026-09-14	vehicle	4
2026-09-14	movement	9
2026-09-14	obstacle	9
2026-09-15	observation	2
2026-09-15	vehicle	8
2026-09-15	movement	7
2026-09-15	obstacle	1
2026-09-16	observation	4
2026-09-16	vehicle	3
2026-09-16	movement	5
2026-09-16	obstacle	7
2026-09-17	observation	4
2026-09-17	vehicle	4
2026-09-17	movement	3
2026-09-17	obstacle	7
2026-09-18	observation	6
2026-09-18	vehicle	7
2026-09-18	movement	9
2026-09-18	obstacle	5
2026-09-19	observation	2
2026-09-19	vehicle	9
2026-09-19	movement	3
2026-09-19	obstacle	9
2026-09-20	observation	7
2026-09-20	vehicle	5
2026-09-20	movement	6
2026-09-20	obstacle	2
2026-09-21	observation	6
2026-09-21	vehicle	6
2026-09-21	movement	9
2026-09-21	obstacle	9
2026-09-22	observation	9
2026-09-22	vehicle	7
2026-09-22	movement	4
2026-09-22	obstacle	5
2026-09-23	observation	6
2026-09-23	vehicle	1
2026-09-23	movement	6

period	series	value
2026-09-23	obstacle	5
2026-09-24	observation	9
2026-09-24	vehicle	7
2026-09-24	movement	9
2026-09-24	obstacle	6
2026-09-25	observation	6
2026-09-25	vehicle	4
2026-09-25	movement	2
2026-09-25	obstacle	2
2026-09-26	observation	6
2026-09-26	vehicle	8
2026-09-26	movement	2
2026-09-26	obstacle	4
2026-09-27	observation	10
2026-09-27	vehicle	5
2026-09-27	movement	3
2026-09-27	obstacle	2
2026-09-28	observation	4
2026-09-28	vehicle	6
2026-09-28	movement	8
2026-09-28	obstacle	6
2026-09-29	observation	9
2026-09-29	vehicle	7
2026-09-29	movement	4
2026-09-29	obstacle	7
2026-09-30	observation	3
2026-09-30	vehicle	8
2026-09-30	movement	9
2026-09-30	obstacle	8
2026-10-01	observation	7
2026-10-01	vehicle	3
2026-10-01	movement	6
2026-10-01	obstacle	10
2026-10-02	observation	8
2026-10-02	vehicle	5
2026-10-02	movement	6
2026-10-02	obstacle	5
2026-10-03	observation	9
2026-10-03	vehicle	6
2026-10-03	movement	3
2026-10-03	obstacle	3
2026-10-04	observation	9
2026-10-04	vehicle	5

period	series	value
2026-10-04	movement	6
2026-10-04	obstacle	4

Figure 44. Find point clusters: Obstacles over time [92]

period	series	value
2026-08-24	fallen tree	1
2026-08-24	fence	0
2026-08-24	washout	0
2026-08-24	bog	0
2026-08-24	ford too deep	0
2026-08-25	fallen tree	0
2026-08-25	fence	0
2026-08-25	washout	0
2026-08-25	bog	0
2026-08-25	ford too deep	1
2026-08-26	fallen tree	0
2026-08-26	fence	1
2026-08-26	washout	0
2026-08-26	bog	0
2026-08-26	ford too deep	1
2026-08-27	fallen tree	0
2026-08-27	fence	1
2026-08-27	washout	0
2026-08-27	bog	0
2026-08-27	ford too deep	0
2026-08-28	fallen tree	0
2026-08-28	fence	1
2026-08-28	washout	0
2026-08-28	bog	0
2026-08-28	ford too deep	0
2026-08-29	fallen tree	0
2026-08-29	fence	0
2026-08-29	washout	2
2026-08-29	bog	1
2026-08-29	ford too deep	2
2026-08-30	fallen tree	0
2026-08-30	fence	0
2026-08-30	washout	0
2026-08-30	bog	1
2026-08-30	ford too deep	0
2026-08-31	fallen tree	0
2026-08-31	fence	1
2026-08-31	washout	1
2026-08-31	bog	0

period	series	value
2026-08-31	ford too deep	0
2026-09-01	fallen tree	1
2026-09-01	fence	0
2026-09-01	washout	0
2026-09-01	bog	1
2026-09-01	ford too deep	0
2026-09-02	fallen tree	0
2026-09-02	fence	1
2026-09-02	washout	1
2026-09-02	bog	0
2026-09-02	ford too deep	2
2026-09-03	fallen tree	0
2026-09-03	fence	1
2026-09-03	washout	3
2026-09-03	bog	2
2026-09-03	ford too deep	0
2026-09-04	fallen tree	0
2026-09-04	fence	0
2026-09-04	washout	1
2026-09-04	bog	1
2026-09-04	ford too deep	0
2026-09-05	fallen tree	1
2026-09-05	fence	1
2026-09-05	washout	0
2026-09-05	bog	0
2026-09-05	ford too deep	0
2026-09-06	fallen tree	1
2026-09-06	fence	0
2026-09-06	washout	1
2026-09-06	bog	0
2026-09-06	ford too deep	0
2026-09-07	fallen tree	0
2026-09-07	fence	1
2026-09-07	washout	0
2026-09-07	bog	0
2026-09-07	ford too deep	0
2026-09-08	fallen tree	0
2026-09-08	fence	0
2026-09-08	washout	0
2026-09-08	bog	0
2026-09-08	ford too deep	0
2026-09-09	fallen tree	1
2026-09-09	fence	1

period	series	value
2026-09-09	washout	2
2026-09-09	bog	1
2026-09-09	ford too deep	0
2026-09-10	fallen tree	2
2026-09-10	fence	0
2026-09-10	washout	0
2026-09-10	bog	0
2026-09-10	ford too deep	1
2026-09-11	fallen tree	0
2026-09-11	fence	1
2026-09-11	washout	1
2026-09-11	bog	0
2026-09-11	ford too deep	0
2026-09-12	fallen tree	0
2026-09-12	fence	0
2026-09-12	washout	0
2026-09-12	bog	0
2026-09-12	ford too deep	0
2026-09-13	fallen tree	1
2026-09-13	fence	0
2026-09-13	washout	1
2026-09-13	bog	0
2026-09-13	ford too deep	0
2026-09-14	fallen tree	0
2026-09-14	fence	0
2026-09-14	washout	1
2026-09-14	bog	0
2026-09-14	ford too deep	0
2026-09-15	fallen tree	3
2026-09-15	fence	0
2026-09-15	washout	0
2026-09-15	bog	1
2026-09-15	ford too deep	1
2026-09-16	fallen tree	1
2026-09-16	fence	1
2026-09-16	washout	2
2026-09-16	bog	0
2026-09-16	ford too deep	0
2026-09-17	fallen tree	0
2026-09-17	fence	0
2026-09-17	washout	1
2026-09-17	bog	0
2026-09-17	ford too deep	1

period	series	value
2026-09-18	fallen tree	1
2026-09-18	fence	1
2026-09-18	washout	0
2026-09-18	bog	1
2026-09-18	ford too deep	0
2026-09-19	fallen tree	1
2026-09-19	fence	0
2026-09-19	washout	1
2026-09-19	bog	0
2026-09-19	ford too deep	0
2026-09-20	fallen tree	0
2026-09-20	fence	0
2026-09-20	washout	0
2026-09-20	bog	0
2026-09-20	ford too deep	1
2026-09-21	fallen tree	0
2026-09-21	fence	0
2026-09-21	washout	0
2026-09-21	bog	0
2026-09-21	ford too deep	0
2026-09-22	fallen tree	1
2026-09-22	fence	2
2026-09-22	washout	0
2026-09-22	bog	0
2026-09-22	ford too deep	1
2026-09-23	fallen tree	0
2026-09-23	fence	2
2026-09-23	washout	0
2026-09-23	bog	0
2026-09-23	ford too deep	0
2026-09-24	fallen tree	0
2026-09-24	fence	0
2026-09-24	washout	0
2026-09-24	bog	1
2026-09-24	ford too deep	1
2026-09-25	fallen tree	0
2026-09-25	fence	1
2026-09-25	washout	0
2026-09-25	bog	0
2026-09-25	ford too deep	0
2026-09-26	fallen tree	0
2026-09-26	fence	1
2026-09-26	washout	0

period	series	value
2026-09-26	bog	0
2026-09-26	ford too deep	2
2026-09-27	fallen tree	1
2026-09-27	fence	0
2026-09-27	washout	0
2026-09-27	bog	0
2026-09-27	ford too deep	0
2026-09-28	fallen tree	0
2026-09-28	fence	0
2026-09-28	washout	0
2026-09-28	bog	2
2026-09-28	ford too deep	0
2026-09-29	fallen tree	0
2026-09-29	fence	0
2026-09-29	washout	0
2026-09-29	bog	0
2026-09-29	ford too deep	0
2026-09-30	fallen tree	0
2026-09-30	fence	0
2026-09-30	washout	0
2026-09-30	bog	0
2026-09-30	ford too deep	0
2026-10-01	fallen tree	1
2026-10-01	fence	0
2026-10-01	washout	0
2026-10-01	bog	1
2026-10-01	ford too deep	0
2026-10-02	fallen tree	0
2026-10-02	fence	0
2026-10-02	washout	0
2026-10-02	bog	1
2026-10-02	ford too deep	0
2026-10-03	fallen tree	1
2026-10-03	fence	1
2026-10-03	washout	1
2026-10-03	bog	0
2026-10-03	ford too deep	1
2026-10-04	fallen tree	2
2026-10-04	fence	1
2026-10-04	washout	1
2026-10-04	bog	1
2026-10-04	ford too deep	0