



**COMMUNITY EARLY WARNING AND
RESPONSE PROTOCOL
FOR DEFORESTATION AND FOREST**

COMMUNITY EARLY WARNING AND RESPONSE PROTOCOL FOR DEFORESTATION AND FOREST FIRES

Narakajmanta Indigenous Territory • Sierra Nevada de Santa Marta, Colombia
Master Protocol Consolidating 10 Community Response Procedures

Operational scope — This protocol governs the conversion of Global Forest Watch alerts into community decisions across 9,800 hectares of Narakajmanta ancestral forest, with intensified surveillance over 980 hectares identified as the highest-risk monitoring zone. It is designed for the Indigenous Environmental Secretariat, five community monitoring brigades, and the Narakajmanta Indigenous Tribal Council.

1. Purpose, status and operational logic

We developed this master protocol to convert the forest-monitoring capacity created through the ETHNO-PROGRAM FOR CLIMATE MANAGEMENT OF FOREST IN THE COLOMBIAN ANDEAN MOUNTAINS into a permanent operating procedure. The project trained Narakajmanta women, girls and LGTBI participants to use Global Forest Watch tools and established a community model in which satellite information is translated into field verification, documented evidence and an organized response. By 31 August 2026, the system had moved beyond training. It was being used to guide patrol routes, organize community responsibilities and support decisions in the 9,800-hectare intervention area.

The protocol consolidates the ten community early-response procedures foreseen by the project into one coherent management system. Each procedure addresses a specific operational moment. Together they cover alert reception, technical screening, patrol planning, field verification, escalation, use of response equipment, evidence management, closure, follow-up and monthly governance review. This architecture allows the Indigenous Environmental Secretariat to supervise the entire response chain without creating ten disconnected documents that

would be difficult to maintain in the field.

The maximum response standard is 48 hours from receipt of a priority alert to field verification or formal escalation. This threshold reflects the project design and responds to the physical conditions of the Narakajmanta territory. Steep slopes, narrow trails and unstable mobile connectivity can slow access to a point even when the alert itself is received immediately. For that reason, the protocol separates technical screening from physical verification. It also permits immediate emergency activation when VIIRS or field information indicates an active fire that could expand before a normal patrol reaches the site.

We apply the protocol through a clear authority chain. The Narakajmanta Indigenous Tribal Council provides territorial authorization and validates the community governance framework. The Indigenous Environmental Secretariat manages alerts and assigns operational responsibility. Five monitoring brigades carry out field verification and response tasks. Women and youth who completed the GFW learning cycle participate in interpretation, route selection and community communication. This distribution keeps technical control close to the

territory while maintaining accountability within Indigenous governance.

The protocol is also an evidence standard. Every priority case must end with a traceable record. The minimum record includes alert source, screening decision, assigned brigade, route, field observation, geographic coordinates, photographs where safe,

response decision and closure status. This chain supports the project's georeferenced incident-reporting objective and creates a practical institutional memory for future monitoring after WRI financing. The result is a system in which an alert cannot disappear between a mobile device and a community meeting; it must be screened, assigned, acted upon and documented.

2. Territorial risk context and monitoring priorities

The operational territory is the Narakajmanta ancestral forest in the Sierra Nevada de Santa Marta. For project implementation, we use 9,800 hectares as the active monitoring surface because this is the area consistently linked to the intervention objective, field operations and the community monitoring system. Within that surface, 980 hectares were prioritized for intensified surveillance because the project identified stronger exposure to fire, previous forest-cover loss and pressure on water sources. The protocol therefore distinguishes territorial coverage from operational priority. All 9,800 hectares remain within the monitoring mandate, while the 980 hectares receive faster screening and more frequent field attention.



The risk profile combines climatic and human drivers. The project's earlier diagnosis documented a history of more than 250 wildfire outbreaks and identified prolonged drought as a major factor increasing ignition conditions. Agricultural burning also contributed to forest degradation. These drivers

require different response logic. A VIIRS fire signal may indicate an event that demands immediate escalation, while a GLAD deforestation alert usually requires technical screening and field confirmation before the community determines whether the change represents illegal clearing, agricultural activity, natural disturbance or another condition.

The terrain changes how we interpret time. A straight-line distance on a map can translate into several hours of walking because of slopes, narrow paths and seasonal rain. The patrol planner must therefore consider route safety before assigning a 48-hour verification. When weather makes a direct route unsafe, the Secretariat may divide the route into shorter segments or mobilize a brigade from another access point. The protocol treats this as adaptive management rather than non-compliance, provided the decision is recorded and the alert remains under active follow-up.

Water sources are also part of prioritization. Forest degradation in the Narakajmanta territory affects the availability and reliability of water used by households. Women and girls have historically carried a disproportionate share of water collection responsibilities. For that reason, alerts near critical water sources receive higher operational attention when the likely event could accelerate erosion, reduce shade or increase fire exposure. The field record should explicitly state when a monitored event has a plausible relationship with a water source so that the Secretariat can incorporate the information into land-stewardship decisions.

We use four evidence layers to understand each alert: the satellite signal, the customized MapBuilder context, community knowledge of the site and field evidence collected through Forest Watcher or equivalent georeferenced records. No single layer is sufficient for every case. Satellite data provide speed

and coverage. MapBuilder provides spatial context. Community knowledge helps interpret land use and access. Field evidence determines what is physically present. The protocol is built around the interaction of these four layers because this is what turns remote sensing into a defensible community decision.

Territorial parameter	Operational value	How the protocol uses it
Active monitoring area	9,800 ha	Monthly surveillance universe and MapBuilder reference area.
Highest-risk priority area	980 ha	Faster screening and greater patrol concentration.
Community monitoring structure	5 brigades / 50 monitors	Field verification, evidence capture and response.
Response standard	≤48 hours	Maximum window for priority verification or documented escalation.
Community response infrastructure	10 protocols / 10 communication hubs / 10 kits	Distributed capacity for alert management and fire response.

Figure 1. Project reference map used as the territorial frame for the Narakajmanta monitoring system. Operational response points are maintained in the controlled georeferenced register and reviewed through MapBuilder.

3. Governance, authority and responsibilities

The protocol works because every alert has an owner at each stage. The Narakajmanta Indigenous Tribal Council is the territorial authority. Its role is to authorize the community monitoring system, resolve governance questions that affect land-use decisions and endorse the permanent operation of the Indigenous Environmental Secretariat. The Council does not need to review every routine satellite signal. It becomes directly involved when an incident affects community rules, requires coordination with an external authority or could produce conflict between households or land users.

The Indigenous Environmental Secretariat is the operational control point. The project created this structure to keep GFW-based monitoring inside community governance after the end of the grant. The Secretariat reviews new alerts, assigns a preliminary level, identifies the most appropriate

brigade and confirms whether the response can be completed within the 48-hour window. It also maintains the central incident register. This role prevents multiple brigades from independently responding to the same alert and reduces the duplication problem observed when offline records were not immediately synchronized.

The five community brigades are the field arm of the system. Together they comprise 50 trained monitors. Each brigade must maintain a designated leader for route decisions and a second focal point responsible for evidence. These are operational roles and can rotate according to the Secretariat's internal rules. The leader confirms the route and safety conditions. The evidence focal point checks that photographs, coordinates and field notes are sufficient before the team leaves the site. Separating these responsibilities improves quality without creating an excessively

hierarchical patrol structure.

The ten communication hubs support alert distribution. The original project methodology anticipated WhatsApp groups and SMS as practical mechanisms for areas with variable connectivity. This master protocol preserves that logic while introducing a simple rule: each alert must have one official case identifier. Messages can circulate through several channels, but the case identifier must remain the same. This prevents an alert received in a group chat, later shared by SMS and then discussed in person from becoming three separate incidents in the project record.

Women, girls and LGBTBI participants are central to the governance model because the project was designed to strengthen their forest-monitoring and land-stewardship capacities. The protocol therefore requires that operational meetings create space for trained women and youth to interpret alerts and propose routes. This is not treated as symbolic participation. The practical test is whether their technical interpretation appears in the decision record and whether they hold defined responsibilities in monitoring or response. The Secretariat should review participation patterns quarterly to identify whether decision-making is drifting back toward a narrow group of actors.

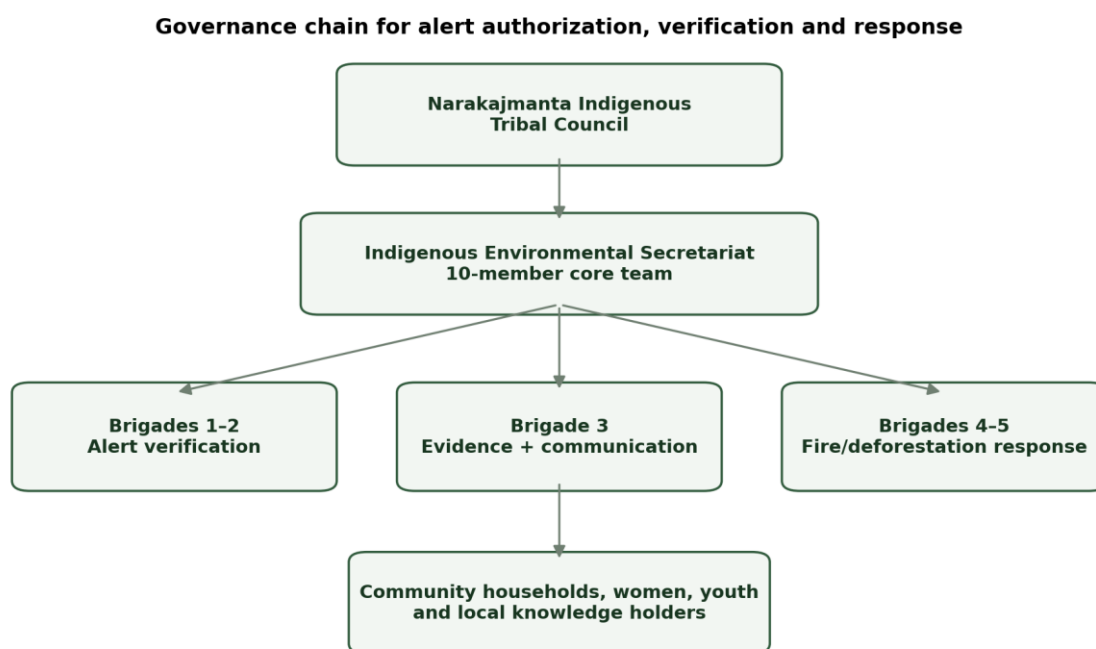


Figure 2. Governance chain for authorization, alert management, field verification and community feedback.

Role	Primary responsibility	Decision boundary
Tribal Council	Territorial authorization and governance oversight	Intervenes in land-use conflict, external reporting or decisions with community-wide implications.
Indigenous Environmental Secretariat	Screens alerts, assigns cases, maintains the central register	Controls operational status and determines whether a case is routine, priority or emergency.
Brigade leader	Plans and supervises the field mission	May modify route for safety but must record the reason.
Evidence focal point	Coordinates coordinates, photographs and incident	Can return a record for correction when

Role	Primary responsibility	Decision boundary
	notes	evidence is incomplete.
Communication hub focal point	Distributes the official case identifier and status	Cannot create a parallel case number for the same event.

4. Alert levels and activation criteria

We use a four-level classification so that the same response standard is not applied mechanically to every signal. Level 0 covers routine monitoring when there is no active alert requiring field action. Level 1 is a watch condition. It begins when a new GLAD or VIIRS signal appears but the location, accessibility or likely meaning is not yet clear. Level 2 is a priority case. It is assigned when the alert is plausible, accessible and could represent forest loss, ignition or another threat requiring field confirmation. Level 3 is an emergency condition used for confirmed active fire or a rapidly expanding threat that requires immediate escalation.



The Secretariat assigns the preliminary level after technical screening in MapBuilder. The decision should consider whether the alert falls inside the 9,800-hectare monitoring area, whether it intersects the 980-hectare priority zone and whether there is a known water source or previously affected site nearby. The level can change after field verification. A Level 1 signal may be closed as a false or low-risk event. It may also become Level 2 if the spatial

context indicates a realistic deforestation threat. A Level 2 case becomes Level 3 when the team confirms active fire or a condition that can spread before a normal follow-up patrol.

GLAD and VIIRS alerts are handled differently because they represent different phenomena. A GLAD alert indicates likely vegetation change and therefore requires interpretation. The field team should determine what changed and whether the change is consistent with illegal deforestation, authorized community land use, a previous burn scar or another condition. VIIRS fire alerts are more time-sensitive. When a VIIRS signal coincides with local smoke reports, visible flame or a known dry-fuel area, the Secretariat should move directly toward emergency coordination rather than wait for a complete deforestation-style verification cycle.

The protocol also recognizes uncertainty. Mountainous terrain can displace the apparent relationship between a satellite signal and the feature reached by a patrol. GPS readings from community smartphones can also vary. A patrol should not classify a case as false simply because the first coordinate does not match the visible disturbance. The team must compare the alert with terrain position, community references and nearby agricultural plots. If uncertainty remains, the case stays open and the Secretariat records the estimated accuracy problem instead of forcing a premature closure.

Activation of a wildfire response kit follows risk rather than convenience. A kit is activated when a Level 3 fire condition is confirmed and the brigade can act safely within the community response

capacity. The kit supports immediate protective action and first response. It does not authorize monitors to enter unsafe fire behavior or replace specialized emergency services. When flame behavior, smoke, wind, access or personal safety

exceeds the community threshold, the correct action is escalation and withdrawal to a safe point. The case record must show that decision because avoiding unsafe exposure is part of effective response management.

Alert classification used by the master protocol

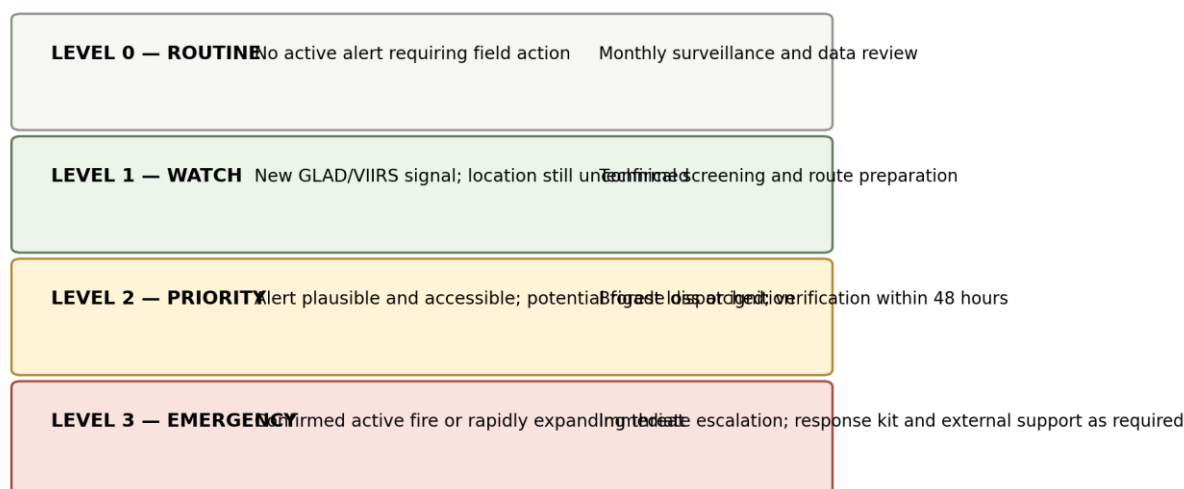


Figure 3. Four alert levels used to determine screening, field verification and emergency escalation.

5. The ten operational procedures consolidated in this master protocol

For implementation, we organize the ten community response procedures as a single sequence. The purpose is practical. A monitor should be able to follow one case from the moment an alert appears until the evidence is archived. The Secretariat should also be able to audit the same case without reconstructing decisions from separate notebooks or messaging groups. Each procedure therefore has a defined trigger, responsible actor, minimum record and closure condition.

Procedure	Trigger	Responsible actor	Minimum output
P-01 Alert Reception	A new GLAD, VIIRS or community signal enters the system.	Secretariat duty focal point	Case ID, source, date/time, preliminary location.
P-02 Technical Screening	The case is checked in MapBuilder and compared with priority layers.	Secretariat technical focal point	Screening note, alert level, access estimate.
P-03 Assignment and Route Planning	A brigade is designated and a safe route is selected.	Secretariat + brigade leader	Assigned team, route, departure plan, expected return.
P-04 Field Verification	The team verifies the location and condition on the ground.	Assigned brigade	Coordinates, photographs, observation, access note.
P-05 Fire Response Activation	Confirmed or rapidly developing fire requires immediate action.	Brigade leader + Secretariat	Kit activation, safety decision, escalation status.
P-06 Deforestation Response Activation	Verified forest loss requires classification and governance	Secretariat + Tribal Council when required	Cause assessment, land-use context, response decision.

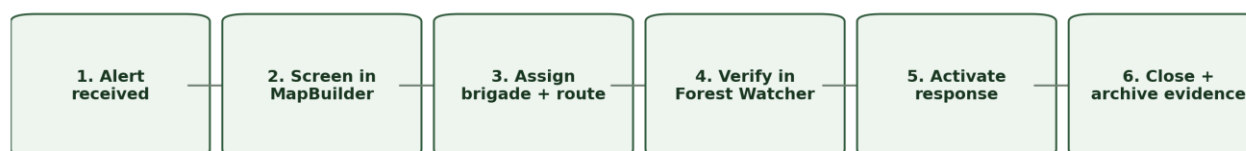
Procedure	Trigger	Responsible actor	Minimum output
	response.		
P-07 Communication and Escalation	The case requires notification beyond the patrol team.	Communication focal point	Recipient, time, message status, external referral if any.
P-08 Evidence Consolidation	Field and digital evidence are synchronized and checked.	Evidence focal point	Complete georeferenced incident record.
P-09 Closure and Follow-up	The case is closed or placed under continued observation.	Secretariat coordinator	Closure code, rationale, follow-up date if needed.
P-10 Monthly Governance Review	Cases are analyzed collectively for patterns and lessons.	Secretariat + Tribal Council	Monthly dashboard, recurrent zones, procedural adjustments.

The procedures are intentionally modular. During a normal deforestation case, the system moves from P-01 through P-04, then to P-06, P-08 and P-09. A fire case can move from P-01 directly to P-05 after a short technical screen if field or community information confirms active danger. P-07 can be activated at any point. P-10 occurs every month and uses the accumulated cases to refine priority zones. This structure preserves the project's 48-hour standard while allowing faster action when the threat requires it.

Every procedure must preserve the original case identifier. The identifier should follow a stable format such as NAR-YYYY-MM-####. This coding convention is an operational recommendation introduced by the master protocol. It is designed to link chat messages, Forest Watcher observations,

MapBuilder screenshots and final incident records. The exact numbering can be adapted by the Secretariat, but the principle should remain constant: one event, one identifier, one traceable evidence chain.

The Secretariat reviews compliance at closure. A case is considered operationally complete when the required evidence exists and the response decision is explicit. A patrol that reaches a site but fails to record coordinates or status has completed movement, not verification. A message that warns a brigade but never produces a case identifier has completed communication, not case management. This distinction is important because the project aims to institutionalize monitoring capacity. The quality of the system depends on whether decisions can be reconstructed after the event.



Operational standard: priority alerts are screened, assigned, verified and acted on within a maximum 48-hour response window.

Figure 4. End-to-end operational flow used by the ten consolidated community procedures.

6. The 48-hour response standard and communications flow

The 48-hour standard begins when the Secretariat records a priority alert as an official case. It does not

begin when an unverified screenshot first appears in an informal chat. This distinction is necessary because the community receives information through several channels and because some alerts may be duplicated. The duty focal point should therefore register the case quickly, ideally within the same monitoring session in which the alert is first reviewed. The recorded time becomes the reference for measuring response performance.

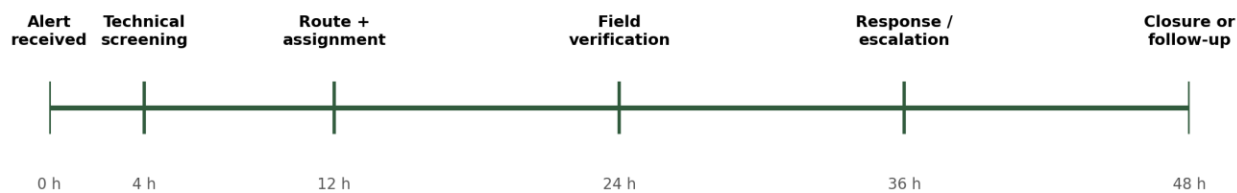


Within the first four hours, the Secretariat completes technical screening. This includes confirming that the alert is within the project monitoring area, identifying its relationship to the 980-hectare priority zone and reviewing access constraints. By approximately 12 hours, a priority case should have an assigned brigade and preliminary route. These are management targets rather than rigid field promises. When an alert is received at night or during dangerous weather, the Secretariat records the constraint and schedules the earliest safe mobilization.

Field verification should normally occur between 12 and 36 hours after case creation. The exact timing depends on distance and terrain. The brigade leader sends a departure confirmation through the assigned communication hub. If connectivity disappears during the route, the case remains active. The absence of a live message is not interpreted as mission failure. The team follows the pre-agreed route and synchronizes evidence when it returns to connectivity. This rule responds directly to the offline conditions experienced during project implementation.

Between 36 and 48 hours, the Secretariat should have enough information to classify the case. If the disturbance is confirmed, the appropriate response procedure is activated. If the team cannot reach the site safely, the case is escalated with an access limitation status rather than closed. If the alert appears spatially displaced, the team records the observed feature and the estimated difference. This preserves the integrity of the dataset and prevents the system from rewarding quick but inaccurate closure.

Communication must be concise. Each operational message should contain the case identifier, alert level, location reference and required action. Long narrative messages are reserved for the incident record. The communication hub should not circulate sensitive details beyond what is needed for mobilization. When a case involves a household, an agricultural plot or an internal land-use disagreement, the Secretariat coordinates with the Tribal Council before distributing information outside the community structure.



The 48-hour standard is a maximum operational window; confirmed active fire conditions trigger immediate escalation.

Figure 5. Maximum 48-hour operational window for priority alerts. Active fire conditions can bypass normal sequencing and move

directly to emergency escalation.

Communication moment	Minimum message	Expected recipient
Case created	Case ID + source + preliminary location + level	Secretariat duty focal point and assigned communication hub
Brigade assigned	Case ID + brigade + route + departure window	Brigade leader and Secretariat
Field verified	Case ID + status + coordinates + immediate risk	Secretariat and evidence focal point
Emergency escalation	Case ID + confirmed fire/threat + safety status + support needed	Secretariat, Tribal Council and competent emergency contact when required
Case closed	Case ID + closure code + follow-up date if any	Secretariat register and monthly review file

7. Route planning, field deployment and safety

Route planning is a technical decision because access conditions can determine whether a 48-hour response is realistic and safe. The brigade leader begins with the alert location in MapBuilder and identifies the nearest known access point. Community knowledge is then used to refine the route. This step is critical in Narakajmanta because formal road information does not capture the full network of footpaths, seasonal crossings and locally recognized access points. A route that appears short on a base map may be unsuitable after rain or may end at a slope that cannot be crossed safely.



The team should leave with a clear mission question. For a GLAD case, the question may be whether a mapped vegetation change corresponds to active clearing, a previously disturbed area or another land-use condition. For a VIIRS case, the question may be whether fire is active, recently extinguished or spatially displaced from the alert point. A clear question prevents the patrol from collecting large amounts of unrelated information while failing to document the condition that triggered mobilization.

Before departure, the evidence focal point checks that the device contains the necessary offline alert package and that location services are functional. The team confirms battery status and a basic backup method for recording coordinates or notes. The wildfire response kit is not automatically carried on every patrol. It is positioned or mobilized when the alert level justifies its use. This keeps the patrol lighter during normal verification while preserving rapid access to equipment when a Level 3 condition is probable.

The field team should avoid separating in steep or low-visibility terrain unless the route plan explicitly allows it. The protocol does not set a universal team

size because access conditions differ. It does require that the Secretariat know who has left, the intended route and the expected return window. If the route changes substantially, the brigade leader records the reason when connectivity permits. The primary grounds for change are safety, blocked access, weather and new local information about the threat location.

A mission ends when the team returns safely and the evidence is transferred to the central record.

Field safety rule — No performance indicator justifies entering an unsafe fire environment or forcing access through a route that has become dangerous. The correct response is to document the constraint, escalate the case and activate an alternative access or external support pathway.

8. Field verification standards for GLAD and VIIRS alerts

Field verification converts a satellite signal into a community decision. The verification standard is therefore based on sufficiency rather than volume. A good record answers five questions: where the team went, what it observed, what evidence supports that observation, what the likely cause is and what action follows. The record should be understandable to another trained monitor who was not present during the patrol. This standard supports continuity when roles rotate within the Secretariat or brigades.



For a GLAD alert, the team first confirms whether visible vegetation change exists near the alert geometry. The observation should distinguish recent clearing from older disturbance where possible. The

Returning to the community point without synchronizing does not automatically mean the record was lost. During project implementation, monitors experienced uncertainty when photographs and coordinates remained pending until connectivity returned. The master protocol therefore requires an explicit post-mission synchronization check. The evidence focal point must confirm whether each item is saved locally, pending upload or fully synchronized before the case can move to closure.

monitor should record whether the site is inside a known agricultural plot, adjacent to a water source or connected to a previously burned area. The protocol does not require the brigade to make a legal judgment in the field. When land-use authorization is uncertain, the team records the physical condition and refers the governance question to the Secretariat and Tribal Council.

For a VIIRS alert, the team prioritizes fire status and safety. The record should state whether flame, smoke, heat effects or a recent burn scar are visible. If fire is active, the team estimates whether community response is safe and useful. If the fire has already passed, the team records the affected condition and identifies whether follow-up is needed. A VIIRS point that appears several hundred meters from the observed burn should not be discarded. The team records the observed location and notes the spatial difference so the Secretariat can compare it with terrain and imagery.

Coordinates should be captured from a stable position when possible. In dense vegetation or steep terrain, the device may show unstable accuracy. The monitor should wait briefly, compare readings and record an accuracy note if the position remains uncertain. The protocol recommends taking a second

coordinate from a visible reference point when the alert is clearly displaced. This creates a more transparent record than presenting a single coordinate as exact when the field team knows it is approximate.

Photographs should document the condition that matters to the decision. One contextual image should show the broader site. One closer image should show

the disturbance or evidence of fire when safe. Additional photographs are useful only when they add information. The evidence focal point should avoid redundant image sets that make the case harder to review. Sensitive household details or identifiable persons should not be photographed unless there is a clear operational reason and community rules permit it.

Verification element	GLAD deforestation case	VIIRS fire case
Primary question	Is there recent forest-cover change and what is its likely context?	Is there active or recent fire and what immediate risk remains?
Minimum spatial evidence	Alert geometry + field coordinate + site reference	Fire alert point + observed fire/burn coordinate + access note
Minimum visual evidence	Context image and disturbance image when safe	Context image and fire/burn evidence when safe
Immediate decision	Close, follow-up, land-use review or response activation	Close, monitor, activate kit or escalate emergency response
Typical uncertainty	Land-use authorization or alert displacement	Rapidly changing fire status, smoke visibility or spatial offset

9. Fire-response kit activation and firebreak coordination

The project established ten community wildfire response kits and ten strategically located firebreak areas intended to strengthen local readiness in high-risk forest zones. This protocol links those assets to the alert system. A kit is an operational resource assigned to a response point. It is not a symbolic project output. Its value depends on whether the Secretariat knows its condition, location, custodian and access route at the moment a fire alert becomes urgent.

Kit activation begins with a Level 3 condition or a Level 2 case that is highly likely to become an active fire event. The Secretariat identifies the closest appropriate response point and confirms whether access remains viable. The brigade leader assesses whether community action can be undertaken safely. If the answer is yes, the kit is mobilized according to its contents and the team's training. If the answer is

no, the system shifts from direct response to protection, communication and external escalation.

The ten firebreak areas are treated as physical risk-management assets. Their purpose is to reduce opportunities for fire to move continuously through vulnerable vegetation. They must therefore be reviewed against current risk patterns. A firebreak that was strategically located during a dry period may become difficult to access during rain. Conversely, changes in nearby vegetation or land use may increase its importance. The Secretariat should review all ten points at the beginning of each dry season and after any major fire event that changes local fuel conditions.

The project design links the firebreak intervention to the protection of approximately 1,000 hectares of critical forest. The protocol uses this figure as the management objective for the fire-response network,

not as a claim that every hectare receives identical physical protection. Protection is produced through placement, early warning, faster mobilization and the interruption of fire spread. The monthly review should therefore examine whether response points remain aligned with the areas that current GFW information and community observation identify as most exposed.

Every kit activation requires a short post-use

inspection. Consumable or damaged items are recorded. The custodian confirms what must be replaced before the kit returns to ready status. This step matters because an unused kit can appear operational on paper even when it is incomplete. The Secretariat should maintain a ten-row readiness table and review it monthly during high-risk periods. A kit that is unavailable must be marked as such so the route planner does not rely on equipment that cannot actually be mobilized.

Response point	Operational function	Spatial relationship to high-risk area	Coordinate control
RP-01	Wildfire kit + associated firebreak reference	To be confirmed against the 980-ha priority layer during seasonal review	Maintained in controlled MapBuilder/georeferenced register
RP-02	Wildfire kit + associated firebreak reference	To be confirmed against the 980-ha priority layer during seasonal review	Maintained in controlled MapBuilder/georeferenced register
RP-03	Wildfire kit + associated firebreak reference	To be confirmed against the 980-ha priority layer during seasonal review	Maintained in controlled MapBuilder/georeferenced register
RP-04	Wildfire kit + associated firebreak reference	To be confirmed against the 980-ha priority layer during seasonal review	Maintained in controlled MapBuilder/georeferenced register
RP-05	Wildfire kit + associated firebreak reference	To be confirmed against the 980-ha priority layer during seasonal review	Maintained in controlled MapBuilder/georeferenced register
RP-06	Wildfire kit + associated firebreak reference	To be confirmed against the 980-ha priority layer during seasonal review	Maintained in controlled MapBuilder/georeferenced register
RP-07	Wildfire kit + associated firebreak reference	To be confirmed against the 980-ha priority layer during seasonal review	Maintained in controlled MapBuilder/georeferenced register
RP-08	Wildfire kit + associated firebreak reference	To be confirmed against the 980-ha priority layer during seasonal review	Maintained in controlled MapBuilder/georeferenced register
RP-09	Wildfire kit + associated firebreak reference	To be confirmed against the 980-ha priority layer during seasonal review	Maintained in controlled MapBuilder/georeferenced register
RP-10	Wildfire kit + associated firebreak reference	To be confirmed against the 980-ha priority layer during seasonal review	Maintained in controlled MapBuilder/georeferenced register

The table intentionally does not invent coordinates that are not contained in the approved narrative documents.

The Secretariat should populate the controlled georeferenced register from the project's field records and MapBuilder layers. This approach preserves technical credibility and allows sensitive operational locations to remain under Indigenous governance when public disclosure is not appropriate.

10. Evidence management, synchronization and GPS uncertainty

Evidence management is the point where many community monitoring systems lose reliability. The Narakajmanta project identified this risk directly. During April–June, a team downloaded alerts before entering an area without signal. Field photographs and coordinates remained pending until the monitors returned to connectivity. Another monitor later believed the information had not been saved and repeated part of the route. The incident showed that offline capability is useful only when the operational team can distinguish stored data from synchronized data.



The master protocol therefore requires a three-state synchronization check: SAVED LOCALLY, PENDING SYNCHRONIZATION and SYNCHRONIZED. These statuses can be recorded in a simple incident-control sheet even when the application interface does not display them clearly. The evidence focal point checks each case after the team returns. A case cannot be closed while its core evidence remains in an uncertain state. If synchronization fails, the team preserves the original device record and creates a controlled backup rather than recreating the patrol from memory.

GPS uncertainty is handled in the same transparent way. The project experienced an alert that appeared displaced toward a difficult hillside, while field verification indicated that the actual disturbance was several hundred meters lower near an agricultural plot. Terrain, cloud conditions and phone GPS accuracy contributed to the mismatch. The protocol responds by requiring an accuracy note when the field team has reason to doubt the displayed point. The team records the observed disturbance coordinate separately from the original alert coordinate.

A complete georeferenced incident record should contain the original alert location and the field-observed location when they differ. It should also contain the date, the assigned brigade and the interpretation status. The project framework anticipated 300 georeferenced incident reports by project end. This protocol uses that reporting structure as the minimum documentation model for continuing operations. Future records should follow the same logic even after the grant because comparability over time is more valuable than changing the evidence format every year.

The central archive should be organized so that a reviewer can move from the case register to the supporting evidence without searching through personal phones or multiple messaging groups. The recommended structure is one folder per case identifier, containing the alert reference, screening note, route record, photographs and closure form. The Secretariat may use a cloud or local storage system depending on connectivity. What matters is that the archive remains controlled, backed up and accessible to the Indigenous governance structure responsible for monitoring.

Evidence status	Meaning	Required action
SAVED LOCALLY	Evidence exists on the field device but has not reached the central archive.	Do not repeat the patrol solely because data are offline; preserve the device record and schedule synchronization.
PENDING SYNCHRONIZATION	Upload or transfer has been initiated but is not confirmed.	Keep the case open and verify the file after connectivity returns.
SYNCHRONIZED	Core evidence is present in the central incident folder.	Proceed to quality review and closure decision.
INCOMPLETE	Required coordinate, image or observation is missing.	Return to the evidence focal point for correction or documented explanation.

11. Case closure, quality assurance and monthly review

Case closure is a technical decision, not an administrative convenience. The Secretariat closes a case only when the field status and response decision are clear enough to support future review. A case may close as no significant threat, verified deforestation, verified fire, resolved local land-use matter, referred for governance decision or unresolved access limitation. The exact closure vocabulary should remain stable for at least one monitoring year so the Secretariat can compare patterns across months.



Quality assurance is performed before closure. The evidence focal point checks that the original alert can be linked to the field record. Coordinates and photographs are reviewed for consistency. The narrative should explain any important difference

between the satellite location and the observed site. The Secretariat then checks the response time. If verification exceeded 48 hours, the record must show why. Acceptable explanations include unsafe weather, blocked access or a documented need to wait for territorial authorization. Missing information is not treated as an acceptable explanation.

The monthly governance review transforms individual cases into management intelligence. The Secretariat should review the number of new alerts, the proportion verified, average response time and the spatial concentration of incidents. It should also identify recurrent access problems. This allows the 980-hectare priority layer to evolve as field evidence accumulates. A sector that repeatedly generates verified threats may warrant higher surveillance frequency. A sector with repeated false or displaced alerts may require different route planning or interpretation guidance.

The Tribal Council participates in the monthly review when cases affect land-use governance, community rules or external coordination. The review should avoid turning every case into a broad assembly discussion because that would slow response management. Instead, the Secretariat presents a concise dashboard and highlights the cases that require governance attention. This separation

protects operational efficiency while preserving Indigenous authority over decisions that affect territory and community relationships.

Corrective action should be simple. If the same evidence error appears in several cases, the Secretariat conducts a short refresher session with the relevant monitors. If response time is increasing

because one access route is repeatedly blocked, the route map is adjusted. If a kit is repeatedly unavailable, custodianship or placement is reviewed. The protocol favors specific corrections linked to observed failures. This approach keeps the system practical and prevents the monthly review from becoming a general discussion without operational consequences.

Monthly indicator	Operational standard	Evidence source
Priority alerts screened	100% of alerts entered as official cases	Central case register
Priority alerts verified	At least 90% where physical access is feasible	Field records and Forest Watcher/georeferenced logs
Response time	Priority verification or escalation within 48 hours	Case timestamps and communication log
Active monitoring coverage	9,800 ha under the monitoring mandate	MapBuilder layers and monthly review map
High-risk surveillance	980 ha reviewed with intensified attention	Priority-zone patrol and alert records
Response assets ready	10 kit/firebreak points reviewed according to seasonal risk	Readiness checklist and monthly Secretariat minutes

12. Gender-responsive participation and community legitimacy

The project was designed around the forest-monitoring and land-stewardship capacities of 300 Narakajmanta women, girls and LGTBI participants. The protocol therefore treats participation as part of operational quality. A monitoring system that uses the same satellite data but excludes the people the project trained would lose one of its central outcomes. The Secretariat should ensure that trained women and youth continue to hold real technical functions in screening, patrol planning, evidence review and community explanation of alerts.

This requirement has a practical basis. During implementation, the project observed a shift in community perceptions about who could interpret technical information. Women and young people began explaining Global Forest Watch alerts during community meetings and proposing verification routes. That change improved local ownership because satellite information became connected to lived territorial knowledge. The protocol preserves

this gain by requiring decision records to identify who participated in the technical interpretation and by encouraging rotation of operational roles.

Gender-responsive monitoring also affects risk interpretation. Forest fires and degradation can reduce water availability and increase the distance required to collect water. Women and girls are often more exposed to those consequences because of their household responsibilities. When an alert is located near a critical water source, the Secretariat should therefore document the potential community impact and prioritize field understanding. This does not mean that every alert near water becomes an emergency. It means that social exposure is included in the technical screening rather than treated as an afterthought.

The protocol also protects dignity. Field evidence should focus on the environmental event. Monitors should avoid unnecessary images of people, households or culturally sensitive places. When an

incident concerns a specific family or agricultural plot, information should be shared through the governance channels needed to resolve the case. Public dissemination is not the default. The purpose of the evidence system is to support forest stewardship and accountable decisions, not to expose community members.

Community legitimacy depends on feedback. When a patrol verifies an alert near a household or

community-use area, the Secretariat should communicate the outcome through an appropriate local channel. The message should explain what was observed and what action, if any, follows. This closes the loop between technology and community knowledge. It also reduces the risk that monitoring is perceived as an external surveillance mechanism. The long-term value of GFW tools in Narakajmanta depends on whether people see them as instruments that strengthen their own territorial governance.

13. Baseline-to-operational result framework

The protocol is anchored in the change achieved during the project period. At baseline, Narakajmanta forest monitoring relied primarily on ground patrols and walkie-talkie communication. There was no customized community MapBuilder system and no organized verification of GLAD alerts. Response to deforestation and fire threats was therefore slower and less spatially targeted. The project introduced a technical chain that linked satellite alerts with offline field verification and community governance.



By the close of August 2026, the intervention had established the conditions required for a permanent alert-response system. Monitoring covered 9,800 hectares, with 980 hectares prioritized for intensified surveillance. Five brigades comprising 50 monitors were linked to field verification. The project framework required at least 90% of alerts to be verified and established a maximum 48-hour

response standard through ten community protocols. Ten wildfire response kits and ten firebreak areas added a physical response layer to the digital monitoring system.

The broader project result targeted a 95% reduction in illegal deforestation alerts and climate-induced fire outbreaks in the identified high-risk zones. This master protocol is the mechanism intended to sustain that result after the funding period. It does so by maintaining the behaviors that produced faster detection and response: routine alert review, spatial prioritization, field confirmation, evidence storage and monthly governance analysis. The protocol does not assume that a past reduction will continue automatically. It requires the community to keep measuring the same variables that made the result visible.

The protocol also supports the second project outcome concerning sustainable land management. When verified alerts repeatedly point to agricultural burning or risky plot preparation, the Secretariat can use the evidence in household engagement and community planning. The project aimed for 60% adoption of sustainable land-management practices among participating households and a 50% reduction in slash-and-burn activity. Alert data provide a practical way to identify where preventive dialogue should be concentrated rather than distributing awareness activities uniformly across the territory.

Dimension	Baseline condition	Operational condition by 31 Aug 2026	Protocol function
Monitoring technology	No customized territorial GFW workflow	MapBuilder, GLAD/VIIRS review and Forest Watcher-supported verification in use	Maintains the alert-to-field chain.
Field organization	General patrols without standardized alert assignment	Five brigades / 50 monitors linked to alert verification	Defines assignment, route and evidence responsibilities.
Response time	No standardized early-response system	Ten community protocols with ≤48-hour target	Tracks timestamps and escalation.
Fire readiness	No project-established kit/firebreak network	10 kits and 10 firebreak response points	Defines activation and readiness control.
Governance	No permanent community entity for GFW-based response	Indigenous Environmental Secretariat established	Owens case register, reviews alerts and coordinates monthly decisions.
Priority geography	No formal high-risk operational layer	980 ha prioritized within 9,800-ha monitoring area	Concentrates surveillance without abandoning full-area coverage.

14. Continuity after WRI financing and protocol maintenance

The grant period ended on 31 August 2026, but the monitoring need did not end with the budget. The project's sustainability model therefore placed the Indigenous Environmental Secretariat at the center of continued operation. This master protocol is one of the instruments that allows the Secretariat to retain institutional memory. It describes who receives an alert, how it becomes a case, how a brigade is mobilized and how evidence returns to the governance system. These are the functions that must continue even if the frequency of externally funded activities changes.

The protocol should be reviewed twice each year. One review should occur before the principal dry period so the Secretariat can verify response points, kit readiness and access routes. The second should occur after the main fire-risk period so lessons from actual alerts can be incorporated. An extraordinary review is required after a major incident, a significant change in community governance or a substantial change in the functionality of GFW tools. Revisions should be approved through the community governance mechanism used by the Secretariat and

Tribal Council.

Training continuity should focus on practice. New monitors should first learn the case flow and then the specific digital tools. Existing monitors should receive short refreshers based on actual errors observed in the monthly dashboard. For example, if records repeatedly lack accuracy notes, the refresher should focus on GPS uncertainty. If duplicate cases increase, the refresher should focus on case identifiers and synchronization. This keeps training proportionate to operational needs and reduces the cost of repeating complete workshops when only one part of the process needs reinforcement.

Equipment maintenance follows the same principle. The Secretariat should maintain a basic inventory of field-capable smartphones, chargers, protective equipment and wildfire kits. The protocol does not prescribe a specific brand or platform version because those can change. It requires functionality: offline access to the alert or route, location capture, evidence storage and reliable transfer to the central record. When a device can no longer perform these functions, the Secretariat can justify replacement

based on an operational requirement rather than on a generic technology preference.

The long-term goal is institutional autonomy with evidence. Narakajmanta leaders should be able to explain where monitoring occurred, which alerts were verified, how quickly the community responded and what patterns are changing. This information can support internal territorial decisions

and future cooperation with technical partners. The protocol therefore serves two purposes at once: it guides the next patrol and it protects the credibility of the monitoring system over time. That continuity is the practical expression of the project's central objective of strengthening Indigenous forest monitoring, fire prevention and land stewardship through Global Forest Watch tools.

15. Annex A — Quick-action field checklist

This checklist is designed for use immediately before and after a field mission. It summarizes the control points described in the full protocol. The brigade leader and evidence focal point may use it on paper or in a digital form. It does not replace the incident record.

Stage	Control point
Before departure	Confirm official case ID and alert level.
Before departure	Review MapBuilder location, priority layer and known access constraints.
Before departure	Confirm assigned brigade members and expected return window.
Before departure	Verify offline alert availability, battery and location services.
Before departure	Confirm whether a wildfire response kit is required and available.
At site	Capture or record field coordinates and note estimated accuracy if uncertain.
At site	Document the condition relevant to the alert with concise observations and photographs when safe.
At site	Record immediate risk to forest, water source or access route when relevant.
After return	Mark evidence as saved locally, pending synchronization or synchronized.
After return	Transfer evidence to the case folder and request quality review.
Closure	Record response decision, closure code and follow-up date if required.

16. Annex B — Master incident record template

Field	Required content
Case identifier	NAR-YYYY-MM-###
Alert source	GLAD / VIIRS / community observation / other
Alert received	Date and time
Preliminary level	0 / 1 / 2 / 3

Field	Required content
MapBuilder screening	Location, priority zone, water-source relationship, access note
Assigned brigade	Brigade number and leader
Departure / return	Date and time
Original alert coordinates	Latitude / longitude or alert geometry reference
Field-observed coordinates	Latitude / longitude + estimated accuracy note
Observed condition	Concise factual description
Photographic evidence	File names or links
Response action	Close / follow-up / fire response / governance review / external escalation
Kit activation	Yes / No; kit ID if used
Synchronization status	Saved locally / pending / synchronized
Closure status	Closure code + date
Follow-up	Responsible person + date if required

17. Annex C — Seasonal readiness review for the 10 response points

The ten response points should be reviewed before the main dry-risk period and after major fire events. Because exact coordinates are controlled through the project georeferenced register rather than the narrative documents used to prepare this protocol, the table below uses operational point identifiers. The Secretariat should complete the coordinate and access fields from MapBuilder and field records.

Point	Coordinate	Access	Kit status	Risk-layer check	Control
RP-01	Coordinate from controlled register	Accessible / conditional / inaccessible	Ready / maintenance required	Priority-zone relation confirmed / update needed	Custodian signature/date
RP-02	Coordinate from controlled register	Accessible / conditional / inaccessible	Ready / maintenance required	Priority-zone relation confirmed / update needed	Custodian signature/date
RP-03	Coordinate from controlled register	Accessible / conditional / inaccessible	Ready / maintenance required	Priority-zone relation confirmed / update needed	Custodian signature/date
RP-04	Coordinate from controlled register	Accessible / conditional / inaccessible	Ready / maintenance required	Priority-zone relation confirmed / update needed	Custodian signature/date
RP-05	Coordinate from controlled register	Accessible / conditional / inaccessible	Ready / maintenance required	Priority-zone relation confirmed / update needed	Custodian signature/date

Point	Coordinate	Access	Kit status	Risk-layer check	Control
RP-06	Coordinate from controlled register	Accessible / conditional / inaccessible	Ready / maintenance required	Priority-zone relation confirmed / update needed	Custodian signature/date
RP-07	Coordinate from controlled register	Accessible / conditional / inaccessible	Ready / maintenance required	Priority-zone relation confirmed / update needed	Custodian signature/date
RP-08	Coordinate from controlled register	Accessible / conditional / inaccessible	Ready / maintenance required	Priority-zone relation confirmed / update needed	Custodian signature/date
RP-09	Coordinate from controlled register	Accessible / conditional / inaccessible	Ready / maintenance required	Priority-zone relation confirmed / update needed	Custodian signature/date
RP-10	Coordinate from controlled register	Accessible / conditional / inaccessible	Ready / maintenance required	Priority-zone relation confirmed / update needed	Custodian signature/date

18. Annex D — Document control and source basis

This protocol was prepared as an operational consolidation of the project architecture and the implementation experience documented through 31 August 2026. It is intended to accompany the final-period reporting package as evidence of institutionalization. The quantitative parameters used here come from the approved project framework and the interim implementation narrative. Where exact coordinates or site-specific operational details were not available in the narrative source documents, the protocol explicitly refers to the controlled georeferenced register rather than fabricating data.

Source document	Information used in this protocol
WRI / Global Forest Watch Subgrant Agreement and Scope of Work	Project objective; monitoring area references; five brigades; 50 monitors; 90% verification target; 300 georeferenced records; 10 early-response protocols; 48-hour response target; 10 kits and 10 firebreak areas; Indigenous Environmental Secretariat.
Approved project proposal	9,800-ha intervention objective; 980-ha priority logic developed during implementation; GFW, GLAD, Forest Watcher and MapBuilder methodology; gender-responsive participation and sustainability design.
Interim Narrative Report, April–June 2026	Operational transition from training to field use; 9,800 ha monitored; 980 ha prioritized; offline synchronization problem; GPS/alert displacement issue; route adaptation in mountainous terrain; growing participation of women and youth.
Project-controlled georeferenced records	Exact response-point coordinates, incident evidence and operational site details to be maintained by the Indigenous Environmental Secretariat.

Implementation principle — Every alert must end in one of three states: verified and closed, verified and under follow-up, or unresolved with a documented reason. An alert should never disappear from the system because connectivity failed, a route changed or responsibility was unclear.

