GMUG Draft Plan Comments

Thank you for the opportunity to comment on this draft Forest Plan. Our family’s lives have been greatly enriched by the GMUG National Forest, and we care deeply for it. I realize the planning process is frustrating and challenging for FS employees and want to express my support for you. It is in this spirit I offer these comments.

General: Suggest adopting consistent format for all sections to have Subheadings for Desired Conditions, Objectives, Standards and Guidelines, and Management Approach, with something pertinent listed under each one, even if it is a commitment like “Standards will be developed that ensure project-level actions are consistent with this DC.” This approach would ensure that each forest value will be consistently addressed. As it is, the plan seems somewhat disorganized and uneven because many of these subheadings are left out, some are filled with volumes of detailed information for some forest uses or values, and some with only scant or none.

FW-DC-EDU-01: “Educational and interpretive programs and activities enrich visitor experience and understanding of the natural resources in the…” Consider substituting “natural values” for “natural resources” to broaden the meaning and include ideas of quiet, escape, recreation, regeneration, fresh air, etc. “Resources” has a more material connotation of things that can be put to use.

FW-DC-AQ-02: “Air quality related values in the class I wilderness areas (West Elk, La Garita, and Maroon Bells-Snowmass) are maintained at natural conditions and do not exceed critical loads or thresholds…” Why not include Sneffels, Uncompahgre wildernesses?.

Suggest another DC for ECO: “Anticipated climate change-related damage to GMUG ecosystems is monitored and mitigated by a range of management actions.” with a supporting objective to develop a strategy to track what, where and how much facilitated movement of plants to emergent suitable habitat should be done, with guidelines for implementation. A second objective is needed to develop Best Management Practices for all standard FS activities to avoid exacerbating climate impacts on these ecosystems, and use them to help with vegetation movement to suitable habitats, eg through seed mixes, reforestation prescriptions, fuel treatment design and specifications, and reconnected. Suggest adding two additional guidelines from the Terrestrial Assessment: 1) Use an ecological portfolio to prioritize areas on the GMUG for observation, restoration, and facilitation strategies, and 2) Future monitoring and management should be focused on assessing threats to regeneration and recruitment (climate or otherwise)

The GMUG Terrestrial Assessment is shocking in the predicted climate impacts, with 50-99% of currently forested habitat unable to support those ecosystems by 2060, meaning at best there would be no mature forest on 50-99% of all current forested lands by 2060. This prediction cannot be left unacknowledged and unaddressed in this plan.

FW-DC-ECO-01: “Ecosystems contain a mosaic of vegetation conditions, densities, and structures…” Suggest substituting the term “age classes” for “conditions”. Conditions has connotations of degradation, eg, poor, fair, good, excellent condition, which could be interpreted to allow for weed infested or overgrazed vegetation as part of the mosaic. Suggest adding an objective derived from the Terrestrial Assessment that’s tied to this DC: Prioritize ecosystems outside of NRV for management to push them back toward NRV based on shifting climate realities, the need for forests to help sequester carbon, and national commitments to limit deforestation. Include as guidelines for each ecosystem the ecosystem recommendations in the Terrestrial Assessment pp 64-65, as well as its recommendation, and add an additional guideline “Analyze proposed vegetation management projects at the watershed level (5th and 6th level hydrologic unit codes) to ensure they are consistent with meeting desired conditions for seral and structural stage distribution as shown in Table 1.

FW-DC-ECO-02: “Ecosystems are resilient to the frequency, extent, and severity of disturbances (such as human impacts,…” Suggest adding a few examples of human impacts that would apply or leaving out the idea of resilience to human impacts. The range of possible human impacts is wide, from minor trampling to complete conversion to new land uses and vegetation types. I don’t see how a resilient ecosystem is able to recover from extreme impacts like these.

FW-OBJ-ECO-04 Suggest expanding it to read “Within 5 years, assess anticipated impacts of shifting climate to ecosystems at the local scale. Use this information to inform a strategy of adaptation and mitigation that can be applied to all relevant FS management, including identifying areas of potential climate refugia (Morelli et al. 2016) in the national forests. Implement monitoring for a subset of these areas.

FW-DC-ECO-05: Why isn’t there an objective or guidelines here for this DC? For example, guidance that it be addressed in all project level plans, especially those that call for large acreages of vegetation alteration…vegetation treatments or timber harvests

FW-GDL-ECO-07: “To maintain ecological integrity and meet wildlife habitat needs, management activities should not result in snag and coarse woody debris levels outside of those in table 2. These levels do not apply within the wildland-urban interface.” Why would snag guidelines be exempted from WUI? Loss of snags from this extensive area (250,000 acres) would have huge consequences for wildlife that depend on them for habitat. Failure to include ecologically appropriate levels of coarse woody debris would alter soil development and soil biota and reduce soil carbon storage. Add objectives and guidelines to maintain a functional level of snags and coarse woody debris while still meeting fuels management needs.

FW-DC-ECO-08: Suggest adding objective “Develop and implement strategy for preserving old growth that addresses monitoring, project design criteria, and adapting to climate change within 2 years”.

FW-DC-RMGD-01: “Riparian management zones have the distribution of physical, chemical, and biological conditions appropriate to support their inherent resiliency to natural disturbances, human activities, and climate variability” Suggest adding a few examples of human impacts that would apply or leaving out the idea of resilience to human impacts. The range of possible human activities is wide, from minor trampling to complete conversion to new land uses and vegetation types. I don’t see how a resilient ecosystem is able to recover from extreme impacts like these.

FW-OBJ-RMGD-06: “During each 10-year period following plan approval, restore or enhance… Actions to help accomplish this objective may include implementing erosion-control restoration techniques, removing conifer encroachment, promoting riparian plant …” Suggest removing conifer encroachment and replacing it with improved grazing management. Poor grazing management such as grazing too many livestock, or grazing for too long a period, or in the wrong season is a well-documented source of riparian degradation, while conifer encroachment is not a direct cause of degradation, at best, it’s a symptom of larger issues. Also, change “implement erosion control restoration techniques” to “control sources and causes of streambank erosion” because it more clearly states that restoration must get at the source of the problem, whether it’s trail placement or ensuring stream corridors remain forested.

FW-OBJ-IVSP-02: “Annually, invasive species management actions are completed on at least 10 percent of inventoried acres so that new infestations are prevented;…” Suggest adding an objective “Develop a weed management strategy within 3 years to increase program efficiency and effectiveness. Include guideline: Prioritize locations that are vectors for spread such as trailheads, parking lots, range water sources, as well as a rapid treatment response strategy for new and State A-list invasive species. Suggest adding objective “Sustained biological control releases are carried out for well-established populations of invasive species that have approved biocontrols available.” Biocontrol is the most efficient and cost-effective way to suppress the competitive capabilities of invasive nonnatives across the thousands of acres they occupy.

Fire/fuels introduction, Page 24: Should acknowledge increased likelihood of human-caused ignitions, especially in WUI and heavily used forest, and that these sources can be managed along with fuels. Management that relates to reducing ignitions includes education, how recreation and camping are regulated and promoted, county and forest fire bans, and travel management. These considerations should be added as guidelines in the recreation, rights of way, and other appropriate programs. Relying primarily on fuels management without a paired consideration of ignition sources will seem disingenuous to the public.

FW-DC-FFM-01: “Life, investments, and valuable resources are protected…” suggest adding “, including fire-sensitive natural values” are protected. As written it could be interpreted to mean only human-related things are to be considered.

FW-OBJ-FFM-02: “To move toward desired ecological conditions (see Key Ecosystem Characteristics section) and reduce the risks and negative impacts of uncharacteristic wildland fire, treat an average of at least 110,000 acres in the first decade of plan implementation, and 150,000 acres in the second decade, …” What is meant by “an average”? is that per year, or per decade? In which case approximately would be a better term. Secondly, are these the acres of vegetation manipulated, or the total acreage protected by strategic spot treatment , which I’d suggest is a more important measure and target? As written, these numbers seem arbitrary and unwarranted without supporting data to identify the need. As noted above under FW-DC-ECO-01, suggest referring to suggested guideline “Analyze proposed vegetation management projects at the watershed level (5th and 6th level hydrologic unit codes) to ensure they are consistent with meeting desired conditions for seral and structural stage distribution as shown in Table 1” Without this, these high acreage targets could lead to implementing costly and damaging treatments where they aren’t needed. As noted in the Draft GMUG Terrestrial Ecosystems Assessment, vegetation treatments themselves can be ecosystem stressors, and “…Design criteria can be used to help avoid or lessen any unwanted side effects associated with vegetation management.” This assessment also notes the legacy of past vegetation management that has stressed ecosystems, especially ponderosa pine ecosystems. Suggest including objective ” Develop fuels treatment strategy within 2 years that ensures efficient and effective treatments consistent with ecosystem DCs”. Include guidelines “Identify departure from ecosystem DC in project planning”, and “Select appropriate, *SCIENTIFICALLY SUBSTANTIATED* action that has a proven track record, and “Consider risk of increased flammability from annuals and sprouting shrubs, ensuring resources are available to control these if project is implemented”, and “Incorporate anticipated climate shifts into project planning.”

… “an appropriate buffer from infrastructure and private land would be considered in the site-specific design and environmental analysis of fuels reduction projects” Does this mean that fuels treatment on Forest land would be separated by a buffering distance from the private land and infrastructure? If so, then even more public land would be affected by private land development, which seems unfair to the taxpayer and Forest user. More broadly, the overall fuels treatment commitment gives the impression that USFS is diverting most of its budget to accommodate private land infrastructure and homes, and as a consequence, poor county planning.

“All fuels treatments should have scheduled periodic maintenance treatments…” The cost—in dollars and ecological impacts-- of periodic maintenance on 250,000 or more acres is likely to be prohibitive. This seems like an unreasonable, unreachable objective. Suggest guidance that fuels treatments be designed for a shifting, rapidly warming climate, designed to be maintained by natural processes, and designed to be strategic and as small as possible to drive down short and long-term costs, with priority given to areas where efforts have been made to fire-proof infrastructure. More broadly, a long-term commitment of resources to maintaining these treatments seems short-sighted in a time of rapid climate change, forest die-off, and changing vegetation patterns, also when there have been recent commitments to halting deforestation at the global level. Suggest acknowledgement of the anticipated impacts of climate change on vegetation and guidelines on how to incorporate expected changes into project planning (see above).

FW-DC-SPEC-01: “Forest management provides for native species movement within and among National Forest System parcels” suggest inserting these words after native species “occupation and” . Also add ”Forest management fosters native communities on Forest lands to provide and optimize habitat for the widest range of species across the landscape as opposed to managing with a single species focus. These are needed to reiterate that habitat on FS land is at least as important as connectivity between FS parcels.

FW-DC-SPEC-02:” Forage availability is maintained or increased, where capable, and contributes to ecosystem resiliency and forage for nongame species, livestock, and big game.” What is meant by forage? Suggest defining forage here to include ecologically appropriate shrubs, forbs, grasses, and sedges. Forage is often viewed as grass, which leads to grass-focused seed mixes and vegetation treatments.

FW-OBJ-SPEC-03: suggest being very specific with vegetation management option by providing examples such as willow replanting, strategic weed control, and incorporating important browse species in fire rehab plans. Otherwise vegetation management will probably just be interpreted as more rollerchopping on a landscape that is slated for extensive fuels treatments as it is.

FW-GDL-SPEC-06: This is a much-needed guideline. Include removal of reforestation tree protectors when they become obsolete or the seedling has died. They currently litter the land in many places on the Plateau. Also, regarding this part: “New infrastructure should be designed to maintain, improve, or at a minimum reduce impacts to habitat connectivity…” reword so that meaning is clearer. Consider adding an objective to systematically evaluate existing infrastructure prior to maintenance to see if it needs improvements to reduce its impacts to connectivity.

FW-DC-SPEC-08: Under management approach, use stronger wording. Require that seed mixes and vegetation management be pollinator and climate smart or neutral at the very least. This is needed to spur more rapid change on the ground, where the go-to policy has been to seed wheat grasses or other forage species, and the seed industry has responded to that approach, making them available and affordable. This DC needs a supporting objective to study the 10-20 year outcome of past local seeding and treatment effects, and apply lessons learned to new treatments. For example, have past revegetation efforts been cost-effective and met objectives? and what has been their impact on natural regeneration, overall species diversity and vegetation type? Without more specific guidance, this pollinator/climate direction is unlikely to be widely adopted because of current barriers to change.

Management Approaches “ To implement GDL-SPEC-13, Tier 1 bighorn sheep herds with the greatest potential to contribute to population viability in the plan area should be prioritized. Tier 2 herds, where they interact or have the potential to interact with Tier 1 herds, should also be prioritized. ..” This appears to give permission to prolong continued contact between domestic and bighorn sheep. Suggest wording that all areas of contact should be addressed as soon as possible (and this could be done with a letter to all sheep permittees) before the grazing plan details are worked out starting with the highest priority bighorn herds.

FW-GDL-SPEC-19: “To maintain viable populations of at-risk species ,…” suggest including “Grazing plans and practices should be modified as necessary to minimize damage to these populations (with consideration given to things like salt placement, fencing, trailing corridors, season and duration of use)”. Poorly managed grazing is a chronic impact to these ecosystems and also at-risk species, and apparently one that gets little management oversight from the FS, based on their range staffing and budget.

FW-OBJ-SPEC-28: “Within 3 years of plan approval, identify locations where illegal offroute motorized travel is a risk factor for at-risk plant occurrences. Within 10 years of plan approval, implement actions to minimize this risk at all known locations….” Why should it take so long to do this when the plan is calling for accomplishing 110,000 acres of fuels treatment in this same time period? This implies a much lower priority is being given to species conservation than is given to fire and fuels management.

FW-OBJ-SPEC-38: “Within 10 years of plan approval, identify and permanently or seasonally close duplicative or redundant system routes and illegal routes…” ten years seems unnecessarily long to address threats for a Federally threatened species… especially when compared with the 110,000 acres of fuels treatments that are slated for the same time period. Appears as if species conservation is a lower priority than fuels management.

FW-OBJ-SPEC-39: Within 5 years of plan approval, install educational signs at all pertinent kiosks, trailheads, or road access From Terrestrial Assessment, again unnecessarily long for sign installation for federally threatened species, is species conservation this low of a priority?

FW-OBJ-SPEC-40: fences…5 years to evaluate fences for hazards is unreasonably long for a threatened species.

New Gunnison sage grouse objective needed: “Incorporate GUSG habitat protection measures and practices into grazing permits and plans within 3 years.”. Guideline: “Stocking, duration, and management should be consistent with utilization levels no greater than 30% on palatable plants in sagebrush and wetland areas. These levels should not be averaged across the allotment, but within each grazing area in a pasture in occupied habitat.” Allowing grazing to exceed these levels will cause habitat degradation, suppress the grass and forb component, and degrade wet meadows in swales and drainages.

New Gunnison sage grouse objective needed: Improve/restore 50% of degraded wet meadows in occupied and potential GUSG habitat, and support these changes with compatible livestock management within 10 years.”

FW-OBJ-SPEC-54: “Within 5 years of plan approval, complete a watershed plan identifying major threats to target species. Within 10 years of plan approval, complete two activities to address these threats.” Too long a time-frame for conservation efforts for these threatened aquatic species. That equates to 15 years for two activities to be done, while thousands of acres are being treated for fuels… this unambitious timeline indicates species conservation is a very low priority.

FW-GDL-SPEC-57: “To reduce sedimentation, for subwatersheds included in the conservation watershed network, net increases in stream crossings and road lengths should be avoided in riparian management zones…” suggest this shows lack of seriousness about reducing threats and conserving the species. A more appropriate guideline would be “Reduce the stream crossings and road lengths in riparian management zones by 30% in 10 years.”

FW-STND-SOIL-02:” Vegetation management activities shall not create detrimental soil conditions, including loss of ground cover, severely burned soils, detrimental soil displacement, erosion, …” suggest adding “loss of soil organic material or imbalances in litter and woody debris that might interfere with decomposition, soil formation, and carbon storage”

FW-GDL-SOIL-07: “To maintain the presence of biological soil crusts in the GMUG, management activities in areas with these crusts should be designed to minimize surface disturbance” suggest minimizing surface disturbance should apply to all areas in the forest to limit the introduction and spread of weeds, and to maintain soil in the best possible soil condition and function.

FW-OBJ-WTR-04: Over the life of the plan, trend at least 15 percent of subwatersheds toward improved watershed conditions…” why so low? And what is allowable for the other 85% of subwatersheds at a time when water in Colorado is such a limited and valuable resource? Such seemingly low targets for improvement over the next 30 years appear inconsistent with the FS mission to care for the land. Suggest instead that subwatersheds with waters not meeting state standards be assessed for corrective action, and appropriate actions taken within 5 years when USFS lands are contributing to nonattainment. Special mention should be made regarding abandoned mines on USFS lands that are the source of contaminated water.

FW-DC-ENMI-02: Suggest an objective is needed to make progress on this DC. “Within 5 years of plan approval, develop a strategy to reclaim abandoned mines that are contributing to waters not attaining state water quality standards”

FW-OBJ-ENMI-06: Within 3 years of plan approval, initiate oil and gas leasing analysis to identify lands open or closed to oil and gas leasing…” suggest adding “with consideration given to greenhouse gas emissions associated with coal, oil, and gas extraction on FS lands, transportation, and burning at their point of use, particularly as relates to national climate goals and the impacts of climate change on GMUG lands.”

FW-STND-ENMI-08: Suggest adding “National greenhouse gas emission reduction targets will be prioritized when considering specific lands for coal leasing”

Under Solar and Wind, Geothermal, and Hydropower, and Energy Infrastructure sections, suggest adding the relevant direction as guidelines here, or collecting them in an appendix that would be referred to here. Without specifying them like this, applicants and project managers and FS staff will have a hard time sifting through the plan for relevant guidance.

FW-OBJ-INFR-03: Suggest adding an objective: Within 5 years, update the current Facilities Master Plan with a strategy to inventory, assess risk, and maintain, decommission, or improve climate resiliency of FS infrastructure, and a prioritization system to ensure cost effective, efficient management.” The proposed guidelines and management approaches could then be included under this objective.

FW-DC-UC-01: suggest changing “Active vegetation management maintains safe and defensible space for existing infrastructure” to… “Permit holders consult with USFS to manage vegetation within these corridors to reduce risk to their infrastructure in a manner that meets FS Plan standards and guidelines.”

Lands section. Many of the bullet points under Management Approaches would be more suitable as guidelines.

FW-DC-RNG-02 This is highly specific for a DC, and should be converted to a guideline. Suggest an alternative DC: “Livestock grazing is managed following scientifically-supported practices consistent with moving toward ecological and recreation desired conditions”

FW-OBJ-RNG-03: suggest changing to “…by evaluating allotment management with all permit holders…” If FS cannot commit to working with each permit holder annually, then should drop the first “Annually,” since it would not be accurate to say ecological integrity is being annually maintained.

FW-OBJ-RNG-04: suggest adding “, evaluating existing range improvements for condition, hazards, and the presence of invasive species, and correcting those that threaten wildlife or are contributing to invasive species spread”

FW-STND-RNG-08: suggest changing to “Livestock grazing shall not exceed moderate utilization (40 to 60 percent of the current above-ground biomass) or have a negative Grazing Response Index value in key areas or other sensitive parts of the allotment such as riparian or lentic wetlands, in swales, or in regenerating aspen stands.”

Need specific grazing guidelines for livestock management in Gunnison Sage Grouse and bighorn sheep occupied habitat.

Suggest adding additional range guideline “Annual grazing plans will be adjusted to avoid further stressing plants during times of drought and in response to shifting climate patterns.”

FW-OBJ-REC-03: 900,000 visitors at one time…This is not clear. As it reads, Blue Lakes Trailhead should be able to accommodate 900,000 people at one time. Is this worded correctly?

FW-OBJ-REC-04: only 100 acres improved in ten years by implementing recreation management plans seems inadequate. Suggest analysis of scale and location of problem, then implementing improvements on 50% of problem areas in ten years, and the other 50% in the next 10 years. Otherwise plan is not serious about managing for DC

FW-OBJ-REC-06: Suggest analysis of scale and location of problem, then implementing improvements on 50% of problem routes in ten years, and the other 50% in the next 10 years. Doing anything less is not serious about managing for DC, and sends a poor message to the public about FS recreation priorities. If the plan does not set more lofty objectives, the FS will not be motivated to find more sustainable solutions, work with partners, educate the public, or engage the rec community to help with the problem.

The level of specificity in the Rec Standards, Guidelines, and Management Approach is so great it’s hard to comprehend, and contributes to the uneven feel of the plan. Advise reorganizing, using appendices, or otherwise condensing to make the document more user-friendly for the public. This clutter also makes it hard for FS employees to see the connections between overarching objective, DC, and more specific standards, guidelines, and management approaches.

FW-GDL-SCNY-03: Suggest adding fuels treatments, utility corridors, and special use infrastructure along with the timber harvest

FW-STND-TMBR-02: suggest modifying to “Timber harvest and restocking shall be conducted consistent with anticipated climate-change loss of suitable habitat for the harvested species. Scientifically substantiated techniques, technology and knowledge must exist to reforest these areas adequately with tree seedlings within 5 years after final harvest, “

Table 16. Minimum restocking level for suitable timber lands is unclear. What is meant by 70 acres must meet minimum restocking?

FW-STND-TMBR-06: Suggest adding “Revise sustained yield estimates to reflect anticipated loss of suitable habitat for most forest types, limit harvest to below those levels over each decade to minimize deforestation.“ The sustained yield calculation description in the Appendix does not mention factoring in anticipated climate change impacts. The Terrestrial Assessment predicts immense forest change, this plan needs to incorporate these predictions into timber management if it is to be at all realistic. Sustainable yield is no longer applicable when most mature forest is slated to be lost due to climate shifts in the next 40 years. Having unrealistically high numbers that are likely to be used by people who don’t read all of the background information can cause damaging harvest decisions to be made.

MA-DC-WLDN-01: Suggest adding wording as follows “Each area’s wilderness character is maintained or improved over time, supported by diverse and resilient ecosystems dominated by vegetation in a natural condition and maintained by natural disturbance regimes such as fire, insects, and disease that generally occur without human influence…” Since vegetation makes up most of a visitor’s immediate surroundings in wilderness, emphasis should be on its natural character, especially since naturalness is one of the key wilderness characteristics.

Suggested Wilderness objective: Analyze anticipated climate-change impacts to each wilderness and its values in GMUG within 5 years, and develop a strategy for mitigating these impacts to wilderness values, and identifying ways that wilderness can help maintain resilience across the landscape, eg through acting as undisturbed corridors for species migration and movements, acting as climate refugia,

MA-OBJ-WLDN-07: Suggest a faster timeline of 5 years. This is a project that a partner group would be happy to help with.

MA-STND-WLDN-08: Suggest changing wording to …”either be leashed, or under direct verbal control by the dog’s owner or handler, or be actively engaged in livestock control or legal pursuit of game at all times, so as not to disturb, harm, or damage wildlife, other animals, people, or property. All dogs must be leashed in the Oh-Be-Joyful Valley within the Raggeds Wilderness, except for working stock dogs, or dogs in legal pursuit of game.” Stock and hunting dogs when they are not actively working can also be a hazard to wildlife and other recreationists. Also this approach is more equitable to all wilderness users.

MA-OBJ-WLDF-03: Suggest this be ordered above the MA-STND-WLDF-02 to keep consistent with format throughout document, and to ensure the STND answers to this objective. Suggest changing wording at end to read “…Within 10 years of plan approval, complete at least one action in each wildlife management area”. This is the kind of work partners would be happy to help with, so the level of ambition should be higher.

MA-STND-WLDF-02: suggest modifying as follows with information consistent with Colorado Parks and Wildlife's (CPW) Recommendations to Avoid and Minimize Impacts to Wildlife from Land Use Development in Colorado. “To maintain habitat function and provide security habitat for wildlife species by minimizing impacts associated with roads and trails, there shall be no net gain in system routes, including motorized and non-motorized, public and administrative, within a wildlife management area boundary. If new routes are to be added, a greater amount of routes must be decommissioned and rehabilitated. Priority for rehabilitation should be given to areas where route density already exceeds 1 linear mile per square mile.” CPW has identified 1 mile of route per square mile as exceeding a threshold for habitat protection.

.What is meant by “increasing resiliency to climate change” when complete shifts in forest vegetation are anticipated?

Why restore characteristic fire regimes and/or fuel structures when these may no longer be accurate or achievable in a rapidly changing climate? Focus on these actions would seem to distract from the larger issue looming, the near-complete migration of forest types away from where they currently reside.

Where is the citation for the Rangeland Assessment?

How are the proposed actions going to help address the needs? For example, how will the extensive fire and fuels treatments mitigate the anticipated vegetation shifts that are occurring between now and 2060? And how will these actions interface with the need to absorb and sequester carbon to reduce anticipated climate changes? The suggested actions are not thought out to the same degree as the analysis has been. Suggest mapping out a strategy forward that sets up a road map for adaptive management, addresses information gaps and how to deal with uncertainty, and has a meaningful timeframe identified. Without this, a lot of time may be wasted and money spent on ineffectual or damaging projects that don’t address the major issues facing the GMUG.