

## RESEARCH PROJECT TECHNICAL REVIEW SCORES

(To be completed independently by TPWD Research Proposal Reviewers)

Project Title: \_\_\_\_\_

PI: \_\_\_\_\_ Reviewer: \_\_\_\_\_ Date: \_\_\_\_ / \_\_\_\_ / \_\_\_\_

Project File Name: \_\_\_\_\_ Total Score: \_\_\_\_\_ Rank: \_\_\_\_\_

(For Office Reference Use: Reviewer need not complete Project File Name, or overall Score or Rank.)

### NEED

1. Does the proposal explicitly address one or more independent priority information needs identified in the Wildlife Strategic Plan, Land and Water Conservation and Recreation Plan, Texas Wildlife Action Plan or other TPWD sponsored or cosponsored plan? Does it advance the Division's mission? *Explain:* \_\_\_\_\_
2. Does the proposal clearly identify one or more specific immediate or important **management** needs, problems, conservation **applications** or practical **uses** for the information generated from this research? *Explain:* \_\_\_\_\_
3. Does the proposal accurately depict the current published status and trend in condition, quality, quantity or distribution (e.g., 'not addressed', 'increasing', 'decreasing or declining at a constant' or 'increasing rate') of the proposed study species, population, ecosystem, or watershed in Texas? *Explain:* \_\_\_\_\_
4. Does the proposal set forth a concise but comprehensive and accurate literature review? Is the historical context for the problem given and is it based upon latest research findings and developments? *Explain:* \_\_\_\_\_
5. Are the premises of any logical argument concerning the problem or need based upon literature or exploratory (pilot study) data analyses or are there errors in logic, assumptions or gaps in rationale? *Explain:* \_\_\_\_\_
6. Is the proposed research approach or topic original, imaginative or novel or does it duplicate previous work at the same location or scale? *Explain:* \_\_\_\_\_

SUBTOTAL: \_\_\_\_\_ x .15 weight = \_\_\_\_\_ score

Please include one discrete integer in blank above that corresponds to closest ordinal rank below.

|      |      |      |           |           |
|------|------|------|-----------|-----------|
| 1    | 2    | 3    | 4         | 5         |
| Poor | Fair | Good | Very Good | Excellent |

## **OBJECTIVES and HYPOTHESES**

1. Are the objectives in the proposal clear, explicit, time- and space-bounded, measurable, directly related and consistent with the priority funding needs, problems, milestones, deliverables and timeline identified elsewhere in the proposal? *Explain:* \_\_\_\_\_
2. Are there explicit proposed hypotheses or models and are they clear, relevant, extraordinary, original, consequential, or informative?  
*Explain:* \_\_\_\_\_

SUBTOTAL:

\_\_\_\_\_ x .20 weight = \_\_\_\_\_ score

*Please include one discrete integer in blank above that corresponds to closest ordinal rank below.*

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| 1    | 2    | 3    | 4         | 5         |
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## **EXPERIMENTAL DESIGN AND STATISTICAL METHODS**

### **Experimental Design**

1. Does the proposal identify whether the nature of this investigation is observational (mensurative – Hurlbert 1984) or experimental (manipulative with treatment, control and replication) or both?  
*Explain:* \_\_\_\_\_
2. Does the proposal identify the experimental or sample units, treatments and controls and are they appropriate for the objectives and hypotheses?  
*Explain:* \_\_\_\_\_
3. Does the proposal specifically identify the properties or parameters of the experimental units that will be measured and why those were chosen? Is there an influence diagram or attributes table? *Explain:* \_\_\_\_\_
4. Does the proposal identify the physical arrangement of the experimental units, or provide a diagram of their physical layout and the temporal sequence in which treatments are applied? *Explain:* \_\_\_\_\_
5. Is the proposal explicit about how and why treatments and controls were assigned to experimental units? (i.e., completely randomized, randomized block, systematic – regular interspersions, simple or clumped segregation, isolative segregation, etc...see Hurlbert 1984). *Explain:* \_\_\_\_\_
6. If so, does that assignment appear to be the most appropriate among all possible designs to minimize the probability of concluding there is a treatment effect when there is none. *Explain:* \_\_\_\_\_
7. Does the proposal identify replicate samples or measurements and are they dispersed in space and time in a manner appropriate to the inferences being drawn and the specific hypotheses being tested?  
*Explain:* \_\_\_\_\_

**Statistical Methods**

7. Does the proposal identify what type of statistical inference will be used (i.e. nonparametric, frequency probability, or Bayesian inference), what assumptions are being made (i.e., for frequency probability - a normal frequency distribution) and what tests of those assumptions will be made (i.e., frequency distribution plot, scatterplot of residuals, heteroscedasticity, skewness and kurtosis, etc)? *Explain:* \_\_\_\_\_
8. Are the statistical methods in the proposal consistent with the objectives and appropriate for each hypothesis? *Explain:* \_\_\_\_\_
9. Are there estimates of sample size that will be necessary to detect a difference if one really exists with a stated power and are the estimation methods appropriate and accurate? *Explain:* \_\_\_\_\_

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|------|------|------|-----------|-----------|
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| Poor | Fair | Good | Very Good | Excellent |

**APPROACHES, PROCEDURES AND LOCATIONS**

1. Do PI credentials (including education and research experience) indicate sound judgment, artistry, and insight to insure deliverables on time on budget and avoidance of introducing systematic error in the execution of the proposal? *Explain:* \_\_\_\_\_
2. Does the proposal have a pilot or trial phase? *Explain:* \_\_\_\_\_
3. Does the proposal identify explicit methods for each hypothesis and are they directly related to those hypotheses? *Explain:* \_\_\_\_\_
4. Are the procedures ambiguous, common, overly complex and unforgiving OR clear, original, simple and robust? *Explain:* \_\_\_\_\_
5. Does the proposal clearly identify the study area location and the resulting spatial scale of any inferences? Is that geographic scale appropriate to meet the problem or need identified in the Plan?  
*Explain:* \_\_\_\_\_
6. Is it probable that the PI or researchers will have access to and permission to publish results from this property? Are they using remote sensing, on public land or public rights-of-way or have they secured written landowner permission (PWD-154A Landowner Permission Form attached).  
*Explain:* \_\_\_\_\_

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**EXPECTED RESULTS AND BENEFITS**

1. Are the proposed methods feasible (low risk)? Will/can they accomplish or produce the proposed project objective and goals given current known limitations of technology and measurement objectivity and accuracy?

*Explain:* \_\_\_\_\_

2. Will the results be comparable to other subsequent studies? Is there enough detail to replicate this study in another place and time? Are they only measuring undifferentiated or un-isolated year or location effects?

*Explain:* \_\_\_\_\_

3. Does the proposal explain how the desired outcomes and anticipated successes will fulfill the priority research need or problem identified in any TPWD sponsored Plan? *Explain:* \_\_\_\_\_

4. Are the anticipated, extended useful life of the research results, products, or services clearly stated in the proposal and are they likely to continue for years after the project is completed? *Explain:* \_\_\_\_\_

5. Does the proposal clearly describe how the longevity/use of the research results/products/services will be maintained after the project is completed (e.g., venues of peer reviewed and popular publication, methods of product distribution/availability; promotional/cooperative efforts; program continuance, etc.) Maintenance plans for longevity/use of project's results/products/services clearly described and determined to be sufficient or acceptable? *Explain:* \_\_\_\_\_

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|------|------|------|-----------|-----------|
| 1    | 2    | 3    | 4         | 5         |
| Poor | Fair | Good | Very Good | Excellent |

**BUDGET**

1. Is the proposed budget adequate or excessive for the scope of work proposed? *Explain:* \_\_\_\_\_

2. Are the human resources (total man-days or adequate staff or seasonal critical paths) adequate or excessive to complete the work proposed? *Explain:* \_\_\_\_\_

3. Are the equipment, supplies and materials adequate or excessive to complete the work proposed? *Explain:* \_\_\_\_\_

SUBTOTAL: \_\_\_\_\_ rating x .10 weight = \_\_\_\_score  
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| Poor | Fair | Good | Very Good | Excellent |

**MATCHING FUNDS, COLLABORATION, TIMELINE & SCHEDULE**

1. Will the proposed research be funded by multiple partners, sources or entities? *Explain:* \_\_\_\_\_
2. What proportion of the total direct and indirect project costs requested from TPWD will the PI or cooperators provide from non-federal sources (non-federal match) relative to amount required to make it federal grant eligible (i.e., PR>25%, SWG>50%, etc)? (“Poor” <26%, “Fair” = 26-35%, “Good” = 36-50%, “Very Good” = 51-74%, Excellent”>74%). *Explain:* \_\_\_\_\_
3. Does the proposal identify a timeline for accomplishing intermediate objectives, hypotheses, milestones and deliverables and is it appropriate or reasonable given the work that needs to occur? *Explain:* \_\_\_\_\_

SUBTOTAL: \_\_\_\_\_ rating x .05 weight = \_\_\_\_\_ score

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|------|------|------|-----------|-----------|
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