



اُنِيْوَرْسِيْٓتِيْ تِيْكَنُوْلُوْجِيْ مَآرَا
UNIVERSITI
TEKNOLOGI
MARA

**FACTORS OF ANIMALS BEING ENDANGERED AND
CRITICALLY ENDANGERED IN MALAYSIA**

**MOHD. AZWAN BIN YAHYA
NUR HAZWANI BINTI MOHAMMAD SANI
SYIFA' BINTI SALEHUDIN**

**BACHELOR OF SCIENCE (HONS.) STATISTICS
FACULTY OF COMPUTER AND MATHEMATICAL SCIENCES**

JANUARY 2021

ABSTRACT

Endangered animals are now considered as the biggest issue worldwide as illegal animal hunting, poaching, deforestation and other illegal activities are still happening because there is a high demand regarding the animals' unique characteristics such as tusks, skin and fur. Malaysia specifically, is home to a wide diversity of birds, mammals, reptiles, amphibians and fish species. However, the number of endangered and critically endangered animals are increasing annually due to several factors. This research is conducted mainly to identify the significant factors that cause animals to become endangered or critically endangered. Besides, this research is done to develop a model using logistic regression method on factors of endangered and critically endangered animals. The importance of this research is to get accurate information regarding the factors of animals being endangered and critically endangered in Malaysia aside from it may be beneficial to the government and non-government bodies in helping to preserve and protect these wonderful species. A total of 250 animals are collected from the IUCN Red List of Threatened Animals website and is classified according to its 12 factors. Based on the analysis, it can be concluded that factors 3 and 4 are significant to the model as their p-values are lower than 0.05. This suggests that factors energy production and mining and biological resource use determine the status of animals to become endangered or critically endangered.

ACKNOWLEDGEMENT

IN THE NAME OF ALLAH, THE MOST GRACIOUS, THE MOST MERCIFUL

Firstly, we are grateful with His blessings we are able to do our final year project (FYP) throughout the semester despite facing many challenges especially during this pandemic season. We would like to express our sincere gratitude towards our respected supervisor, Sir Hilmi bin Samian for his enthusiasm, patience, wise comments and helpful information that have helped us tremendously at all times in our research and writing of this report. His great knowledge, profound experience and professional expertise in Time Series and Regression has enabled us to complete this research successfully. Without his support and guidance, this project would not have been possible.

We also wish to express our appreciation to our Research lecturer, Dr Nurul Nisa' binti Khairul Azmi for her guidance, accommodation and suggestion in helping us complete this report. Not to forget, we would like to extend our gratitude to our family for their external support and our friends for always encouraging us to finish this project.

TABLE OF CONTENTS

ACKNOWLEDGMENT	2
TABLE OF CONTENTS	4
LIST OF TABLES	5
LIST OF FIGURES	6
Chapter 1 Introduction	1
1.1 Background of Study	1
1.2 Problem Statement	2
1.3 Research Objectives	3
1.4 Research Questions	3
1.5 Research Hypothesis	4
1.6 Significance of Study	4
1.7 Scope and Limitation of Study	5
Chapter 2 Literature Review	7
2.1 Introduction	7
2.2 Residential and Commercial Development (Factor 1)	7
2.3 Agriculture and Aquaculture (Factor 2)	8
2.4 Energy Production and Mining (Factor 3)	9
2.5 Biological Resource Use (Factor 4)	10
2.6 Human Intrusion and Disturbance (Factor 5)	11
2.7 Natural System Modifications (Factor 6)	12
2.8 Invasive and Other Problematic Species, Genes and Disease (Factor 7)	13
2.9 Pollution (Factor 8)	14
2.10 Geological Events (Factor 9)	15
2.11 Climate Change and Severe Weather (Factor 10)	16
2.12 Transportation and Service Corridors (Factor 11)	17
2.13 Habitat Loss (Factor 12)	18
2.14 Table of Description	18
2.15 Conclusion	26
Chapter 3 Methodology	27
3.1 Introduction	27
3.2 Description of The Data	27
3.3 Theoretical Framework	29
3.4 Method of Analysis	30
3.4.1 Descriptive Analysis	30
3.4.2 Logistic Regression	30
3.4.3 Assumptions of Logistic Regression	31

3.4.4	Model Evaluation and Diagnostics	32
3.5	Interpretation of Results	36
3.6	Conclusion	37
Chapter 4	Results and Discussions	38
4.1	Introduction	38
4.2	Descriptive Analysis	38
4.3	Logistic Regression	40
4.4	Logistic Regression (Enter Method)	42
4.4.1	Omnibus Tests of Model Coefficients	42
4.4.2	Model Summary	43
4.4.3	Hosmer and Lemeshow Test	44
4.4.4	Interpretation of the Model	44
4.4.5	Final Model	47
4.4.6	Classification Table	48
4.5	Conclusion	49
Chapter 5	Conclusions and Recommendations	50
5.1	Conclusions	50
5.2	Recommendations	51
References		53
APPENDIX A		58
APPENDIX B		59
APPENDIX C		67