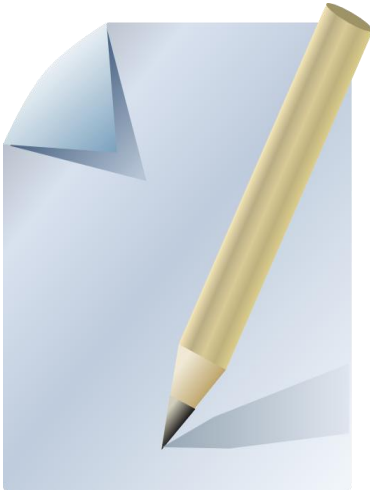


MODUL 6. Penulisan publikasi ilmiah
untuk Ilmu Lingkungan dan Manajemen
Sumberdaya Alam



Teknik penulisan METHODOLOGY

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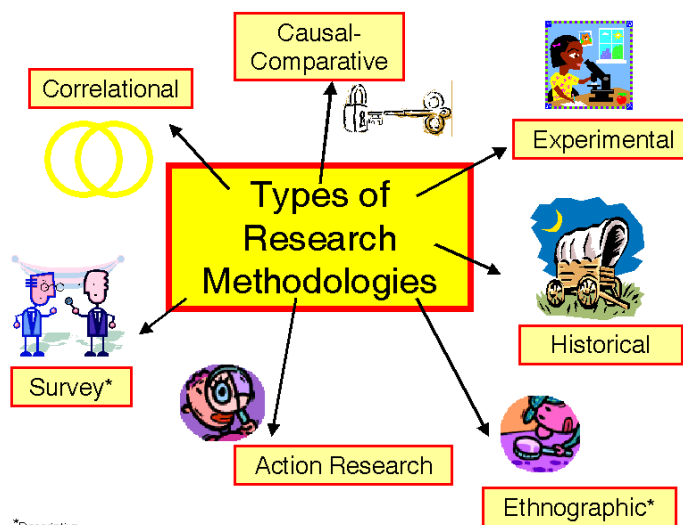
Methodology mempunyai peran antara lain:

- Mendeskripsikan dengan tepat serangkaian langkah sistematis dalam menjawab permasalahan dan tujuan penelitian
- Memberi informasi terkait pendekatan penelitian
- Meningkatkan kepercayaan pembaca akan hasil penelitian yang didapatkan
- Memberikan referensi bagi peneliti lainnya untuk melakukan langkah-langkah yang sama dalam memecahkan permasalahan sejenis

PRINSIP DASAR PENULISAN Metodologi

- ✓ Jelaskan apa yang telah di lakukan
- ✓ Apa yang ditulis sebagai metodologi harus dapat dilakukan juga oleh orang lain
- ✓ Lakukan secara jelas, tegas dan berurutan
- ✓ Jika penelitian melibatkan suatu tempat, deskripsikan dan cantumkan peta lokasi penelitian

Jenis penelitian berimplikasi kepada teknik penulisan Methodology



*Descriptive

Struktur Original Paper (1)

INTRODUCTION

MATERIALS

METHODS

METHODS

RESULT

DISCUSSION

CONCLUSION

Materials and methods

Materials

- Apa yang diperiksa (manusia, hewan, jaringan, dsb)
- Ragam perlakuan (obat, gas, pemupukan, dsb)
- Instrumen

Methods

- Menjelaskan bagaimana subjek dan objek dimanipulasi untuk menghasilkan data-data yang diinginkan/ menjawab pertanyaan-pertanyaan dalam percobaan

Struktur Original Paper (2)

INTRODUCTION

STUDY SITE/ AREA

METHODS

MATERIAL AND
METHODS

RESULT

DISCUSSION

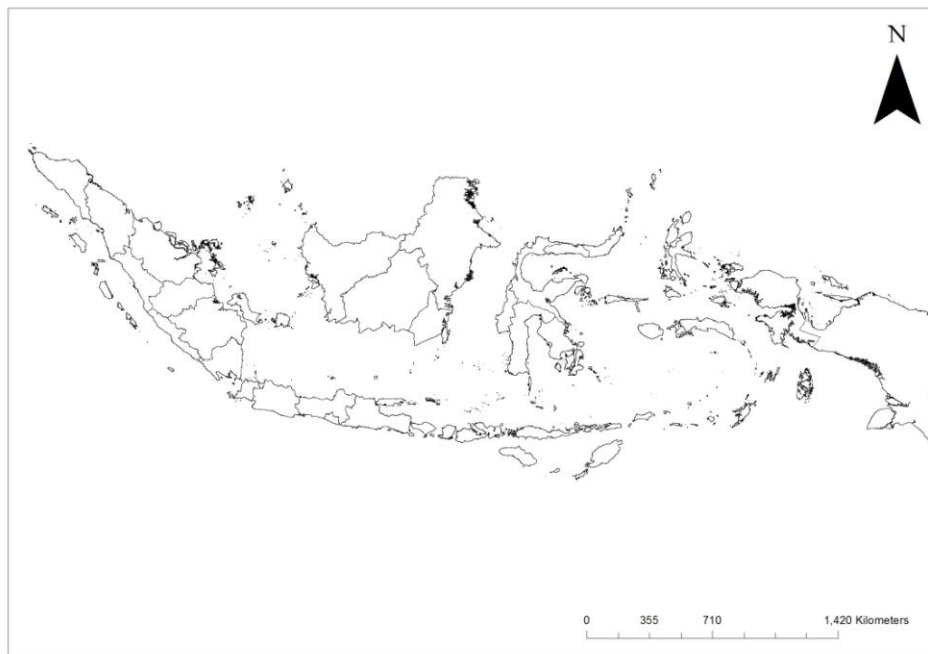
CONCLUSION

Tempat penelitian (Study site)

- Deskripsi tempat penelitian harus disusun secara menyeluruh dan jelas
- Sertakan gambaran/deskripsi kondisi bio-geo-fisik
- Gunakan standar penulisan ilmiah yang benar untuk spesies-spesies
- Peta lokasi harus dibuat secara jelas (misalnya lokasi area studi terhadap posisi benua/negara yang dapat diidentifikasi dengan jelas)
- Sertakan arah mata angin, ukuran peta, legenda, dsb

Study Area

Warren National Park is an 'A' class reserve that occupies 3000 ha in the south-west of Western Australia (Figures 1 and 2). The park is dominated by old growth eucalypt forest with the Warren River flowing through it. Karri (*Eucalyptus diversicolor*) and Marri (*Corymbia calophylla*) forests such as those at Warren National Park are internationally recognised tourist attractions due to the presence of endemic species with a limited distribution. Consequently they draw economically significant numbers of visitors to Western Australia. Warren National Park itself receives about 126,000 visitors per annum (CALM unpublished). Activities include: self-drive touring along a well-signposted and promoted scenic drive, appreciating nature, viewing wildlife, walking, picnicking, camping, swimming and fishing. The park has three formal camping areas where use is concentrated and nine informal campsites located within old growth Karri forest adjacent to the Warren River (Figure 2). Other facilities



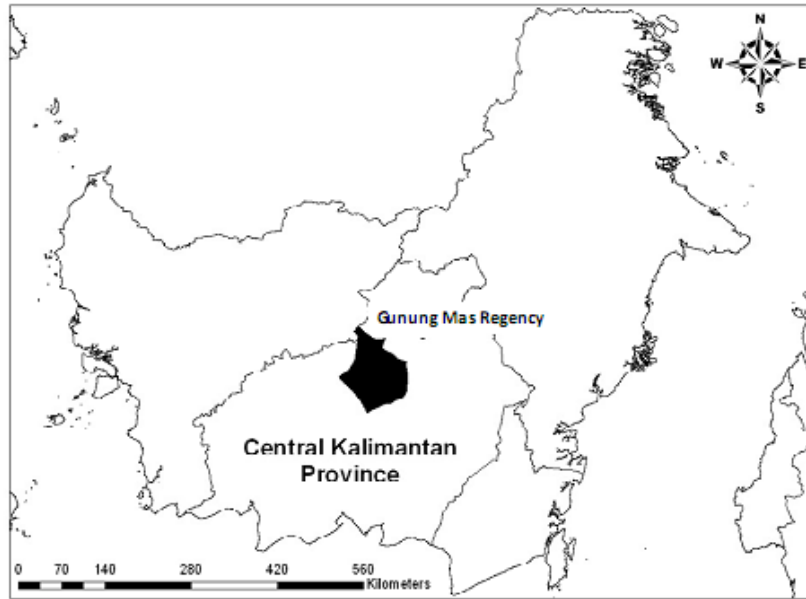
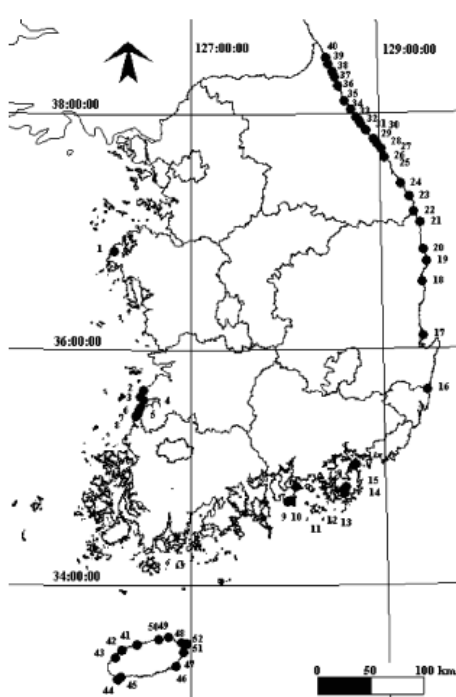


Figure-1
The location of study site located in the hearth of Kalimantan Island



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Estuarine, Coastal and Shelf Science 62 (2005) 335–364

ESTUARINE
COASTAL
AND
SHELF SCIENCE
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Invasive plants on disturbed Korean sand dunes

Kee Dae Kim

Plot pengamatan
dapat dicatumkan
dalam peta lokasi
penelitian



Fig. 1. Study site

Penampilan gambar lokasi penelitian yang tidak tepat

- lokasi penelitian tidak jelas
- tidak ada skala
- Tidak ada mata angin
- ????

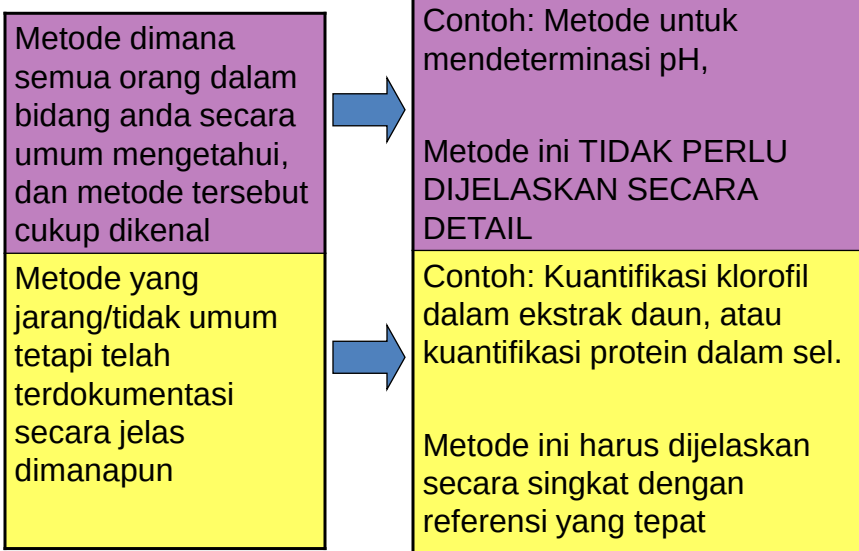
Perhatikan cara penulisan nama ilmiah, Nama latin, dsb

All sampling sites are located within mixed mesophytic forest types, dominated by combinations of red and white oak (*Quercus rubra* L. and *Q. alba* L.), sugar and red maple (*Acer saccharum* Marshall and *A. rubrum* L.), American beech (*Fagus grandifolia* Ehrh.), tulip tree (*Liriodendron tulipifera* L.), and hickories (*Carya* spp.), supplemented to varying degrees by black cherry (*Prunus serotina* Ehrh.), cucumber tree (*Magnolia accuminata* L.), and basswood (*Tilia americana* L.). The understory is characterized by seedlings and saplings of the canopy trees; the shrubs *Lindera benzoin* L., *Hammamelis virginiana* L., and *Viburnum* spp.; the vines *Toxicodendron radicans* (L.), *Parthenocissus quinquefolia*

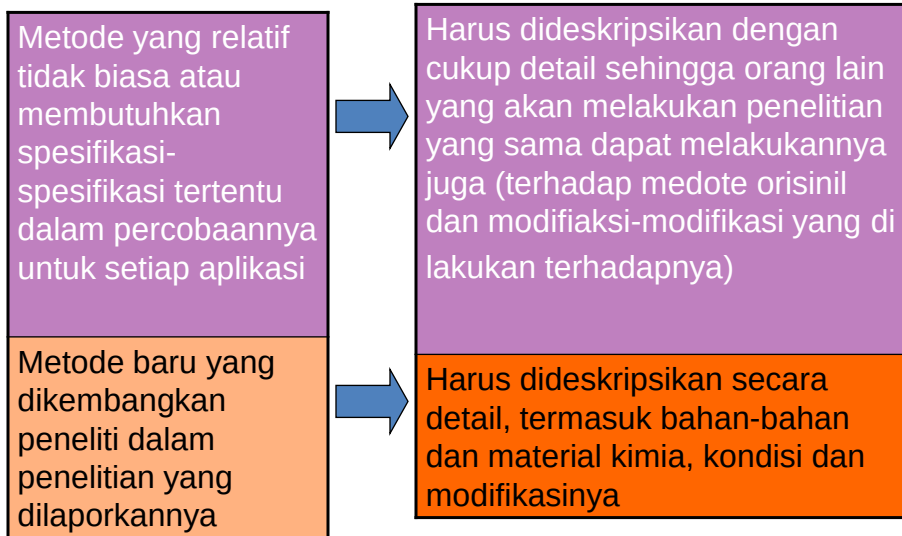
Pengukuran standar internasional

	SI unit	Simbol
Panjang	Meter	m
Berat	Kilogram	kg
Waktu	Detik	s
Suhu	Celcius	C
Volume	Liter	L

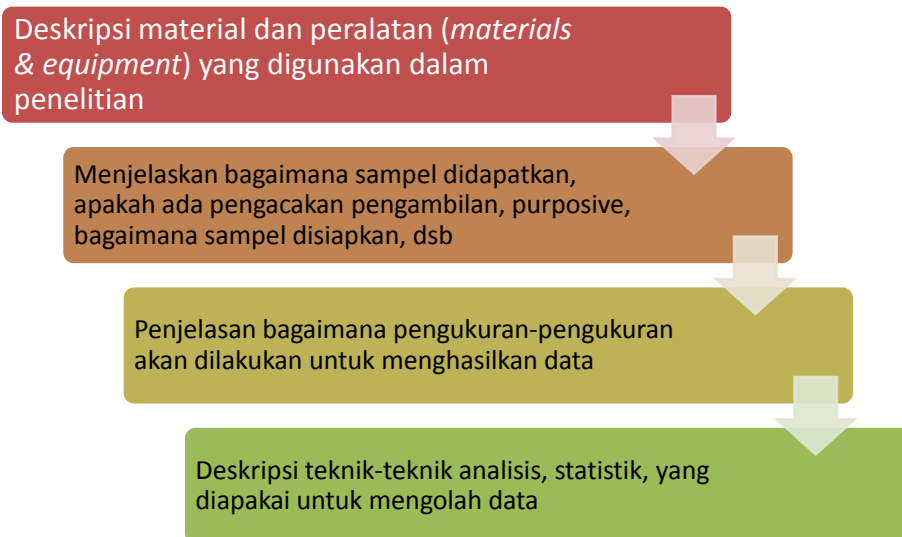
Klasifikasi jenis-jenis metode dan penulisannya dalam makalah



Klasifikasi jenis-jensi metode dan penulisannya dalam makalah



Penulisan (narasi) methodology dapat dibagi dalam beberapa bagian:





PERGAMON

Biomass and Bioenergy 20 (2001) 71–82

BIOMASS &
BIOENERGY

www.elsevier.com/locate/biombioe

Biofuel availability and domestic use patterns in Kenya

Evans Kituyi^{a,b}, Lackson Marufu^b, Shem O. Wandiga^a, Isaac O. Jumba^a,
Meinrat O. Andreae^b, ^c

2. Methodology

2.1. Bibliographic studies

The first method used in this study involved bibliographic studies, in which secondary data were used to estimate biomass quantities. This approach has been employed before in other biomass quantification studies with considerable success [9–11]. Official government statistics were obtained from the Forestry Department, the Ministry of Agriculture, the Central Bureau for Statistics [7,8,12–14] as well as the Government of Kenya bilateral project official publications and consultancy reports on forestry and agroforestry issues [5,6,15–17]. Additional information was obtained from the International Centre for

Sampling design

Ants were collected using Winkler litter extraction. Three transects were selected within each of the forest fragments, and separated from each other by at least 200 m. Each transect was 150 m long and was positioned perpendicular to the forest edge. A litter sample was taken at each of seven pre-determined distances from the forest edge: 2, 5, 10, 25, 50, 100, and 150 m. We chose 150 m as our transect length as previous studies have shown that edge effects dissipate within the first 50 m into the forest (Murcia 1995; Sobrinho and Schoereder 2007). Litter collection was conducted between 10.00 and 16.00 h, and at least a day after a heavy rain as insects are extracted less effectively from wet litter (Fisher 1998).

We used a 1 m × 1 m plastic quadrat to enclose each sampling point, collected the leaf litter inside by hand, and scraped the top layer (2–3 cm) of loose soil using a trowel. We sifted the collected material through a sifter with a mesh opening of approximately 10 mm to exclude larger fragments, such as leaves, twigs and stones. We placed the sifted material in sample bags and transported them to the laboratory. We loaded the sifted litter into flattened mesh bags and suspended them inside the Winkler extractors. We used an empty



Low emissions from wood burning in an ecolabelled residential boiler

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2. Methods

Birchwood was burnt in an ecolabelled residential wood boiler. Smoke samples were collected in the chimney outlet for subsequent analyses by gas chromatography. The methods and analysis are shown in Fig.

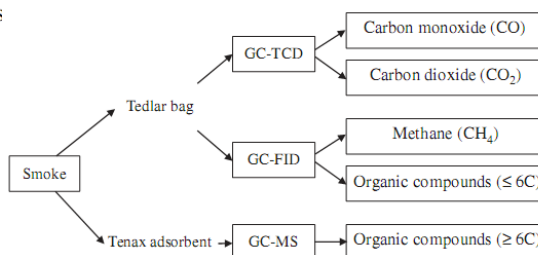


Fig. 1. Methods used for sampling and analysis of the different compounds and groups of compounds.

PENULISAN PERSAMAAN

The cost of forest chips (C) was calculated according to Eq. (1):

$$C = P + S(1 + p_1/100)(1 + p_2/100), \quad (1)$$

where P is the stumpage price of firewood (euro m^{-3}), S the production costs of forest chips (euro m^{-3}), p_1 the overheads (%) and p_2 is the profit (%).

The production costs of forest chips were calculated as

$$S = \sum (t_j \times d_j) + \sum (n_{ej} \times z_e), \quad (2)$$

where t_j is the time expenditure for performing the work j (h m^{-3}), d_j the labour costs per time unit (h), including social insurance (euro), n_{ej} the time expenditure for equipment e for performing the work j (h m^{-3}) and z_e is the operational costs of equipment e (euro h^{-1}).

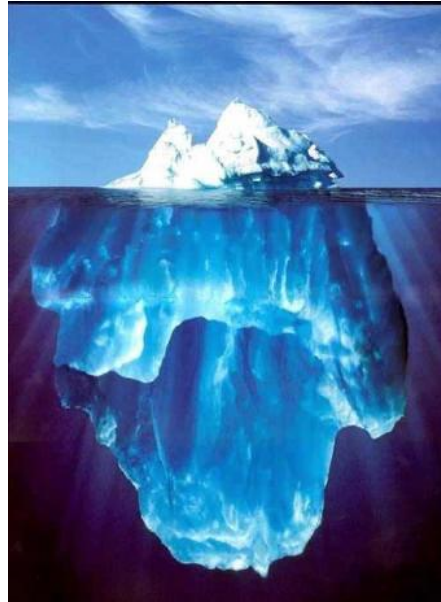
The operational costs of equipments were calculated as

$$Z_e = (V_p - V_1)/E + R/E + \sum (D_{ed} k_d), \quad (3)$$

where Z_e is the operational costs per working hour of

PENGUMPULAN DATA

- adalah proses pengadaaan data primer untuk keperluan penelitian
- data yang dikumpulkan harus valid untuk digunakan
- validitas data dapat ditingkatkan jika alat ukur serta kualitas pengambil datanya sendiri cukup valid
- Pengumpulan data adalah kegiatan yang mengikuti prosedur sistematik dan standart
- Selalu ada hubungan anantara metode mengumpulkan data dengan masalah penelitian yang ingin dipecahkan



PERIHAL *sample* dan *sampling*

Siapa target dalam penelitian ini?	Sebagai: study population
Siapa dalam grup/komunitas tersebut yang akan dilibatkan/diteliti dalam penelitian?	Sebagai: sample .
Berapa yang akan disurvei?	Sebagai: sample size .
Bagaimana kita memutuskan memilih mereka?	Sebagai: sampling method .

Analisis data

Analisis data adalah pengolahan data sesuai dengan kaidah-kaidah penelitian:

- **kualitatif** : berdasar kaidah matematik dan statistik terhadap data angka;
- **Kuantitatif**: organisasi data, memilah-milahnya menjadi satuan yang dapat dikelola, sintesis, mendapatkan pola, menemukan informasi penting dan memutuskan apa yang dapat diceritakan kepada orang lain

Analyses of covariance with repeated measurements (ANCOVAR) were used further to assess the importance of species (or pair or diversity) on soil respiration with tree biomass, soil temperature or moisture as a covariate. The ANCOVARs were run using temperature and moisture only for the early wet season because some covariates were not measured at all times. Finally, ANOVA was used to test the effect of either species or diversity on tree biomass and *t*-tests to examine the effect of pair on this trait. Averages are reported along with standard deviation for single measurements including tree, crown, and microbial biomass. For soil respiration, temperature, and soil moisture that were measured multiple times, standard errors are reported. Possible controls on soil respiration were tested using stepwise multiple linear regression analysis. Control variables (soil temperature, soil moisture, bulk density, tree pair biomass and RGR) were run against soil respiration. Model normality was assessed by testing the normality of model residuals using the Kolmogorov-Smirnov normality test with Lilliefors probability.



Why people travel to exotic places

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Why people
 travel to exotic
 places

45

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Statistical data analysis method

Three main stages of statistical data analysis follow in this report. The first stage entails the reduction of the data through the application of PCA to the set of push and pulls motives. To assess the pertinence of using PCA in this research, the Kaiser-Meyer-Olkin (KMO) statistic was computed and the Bartlett test was performed (Bartlett, 1947). The reliability of the obtained factors was measured by α Cronbach's coefficients (Cronbach, 1951). This analysis was carried out with statistical package for the social sciences (SPSS) software, version 12.

A structural equation model was estimated in the second stage in order to assess the underlined research hypotheses. The factors obtained with PCA were used as indicators of the constructs push and pull motives. The model was estimated with the software analysis of moment structures (AMOS 5) (Arbuckle and Wothke, 1999) and the weighted least squares estimation method was applied. This is an asymptotically distribution-free method, which is not sensitive to the non-normality of the data. The model fit was evaluated by following the approach suggested by Hair *et al.* (1998),

Agar dihindari dalam penulisan Methodology

- Detail penjelasan yang tidak relevan dengan desain penelitian upaya pencarian data
- Penjelasan-penjelasan tentang alasan penggunaan metode yang dipilih
- Adanya review literatur
- Tidak memahami apa yang ditulis

Methodology ditulis naratif, **tidak dalam:**

- *point per point* seperti halnya petunjuk laboratorium
- bentuk diagram alir, bagan-bagan (flowcharts) atau sejenisnya

Check list



- ☐ Deskripsi singkat pendekatan penelitian
- ☐ Cara pengumpulan data yang digunakan
- ☐ Deskripsi lokasi penelitian
- ☐ Cara penulisan ilmiah species yang disebutkan dalam lokasi penelitian
- ☐ Gambar lokasi penelitian
- ☐ Alat yang digunakan
- ☐ Bahan yang digunakan
- ☐ Simulasi dan rancangan percobaan
- ☐ Teknik statistik yang digunakan untuk mengolah data
- ☐ Software/ perangkat statistik yang digunakan
- ☐ Periode dan frekuensi dari pengambilan data
- ☐ Populasi dari sample yang diteliti
- ☐ Teknik sampling, jumlah responden/informan
- ☐ Deskripsi informan kunci
- ☐ Kontruksi dari pertanyaan kuisisioner/ wawancara
- ☐ Tata laksana wawancara