

## Habu Seminar Topics



1. Snakes in Okinawa
2. Characteristics and Ecology of Habu
3. Damages by Habu
4. Countermeasures for Habu

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## “Snake” and “Habu”

**Serpentes** (suborder): about 2400 types in the world

**Boidae family** (Burmese python, etc.)

**Cobra family** (King cobra, Sea snakes, etc.)

**Colubridae family** (*Akamata*, Japanese rat snake)

⋮

**Viperidae (vipers) Family**

**Viperinae subfamily**

**Crotalinae subfamily (pit viper)**

**Gloydius genus (*Mamushi*)**

⋮

**Habu genus: several types mainly in Ryukyu**

**Habu: one of the type**

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## Reasons why alien species snakes were brought to Okinawa

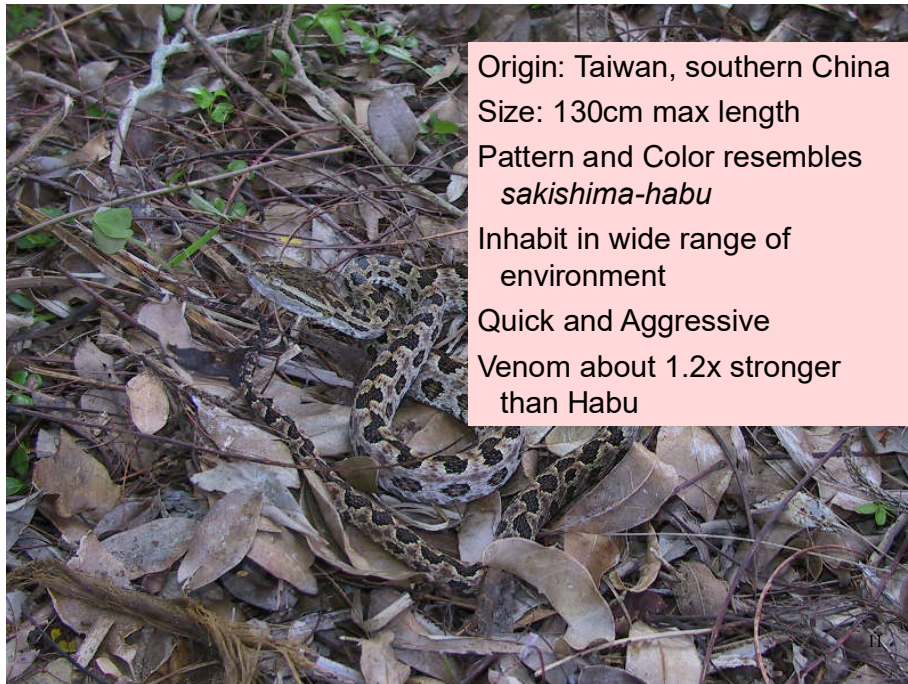
- Mongoose vs Habu Show (tourism)
- Raw materials for Habu sake · Habu powder · Habu oil · snake skin products
- Exhibition (tourism)



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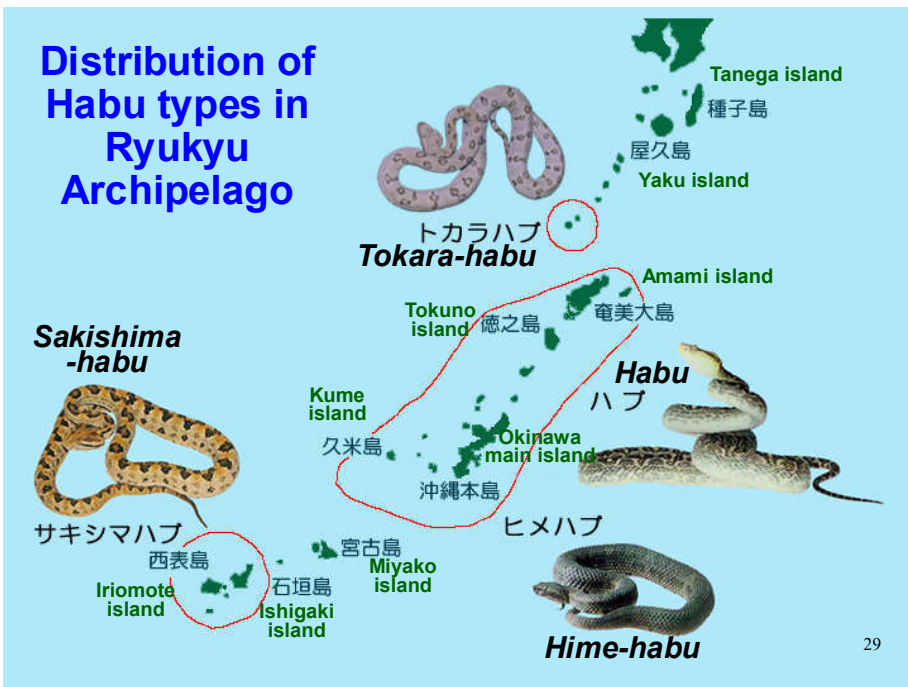
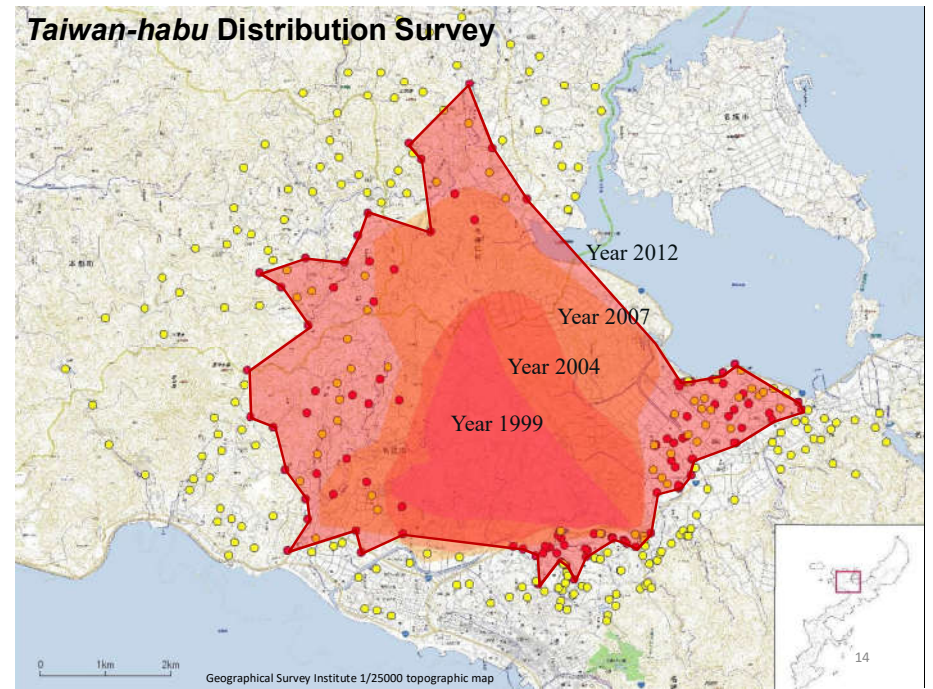


Origin: Taiwan, southern China  
 Size: 130cm max length  
 Pattern and Color resembles *sakishima-habu*  
 Inhabit in wide range of environment  
 Quick and Aggressive  
 Venom about 1.2x stronger than Habu

Year	Circumstance
Until 1990	Imported live <i>Taiwan-habu</i> to Nago for tourism and sake brewing facility
1992	Captured Habu and crossbred habu (total of 3 until 1994)
1993	Record of sightings by residents
1995	Capture <i>Taiwan-habu</i> using cobra traps
1996	Confirmed establishment in Nago
1999	Confirmed distribution range of 4km diameter (sightings and traps) Capture rate similar to Habu at Biimata, etc. Captured one at south of Route 58 Distributed leaflets to neighboring houses for awareness
2002	Captured at nearly three times the 1999 rate
2003	Nago-city set-up traps, informed residents of Biimata Continuous sightings reported at facilities near Route 58 Captured habu at Biimata and Nakayama areas at 4 times the rate None captured with traps in Kyoda
2004	2 captured on the south side of Route 58 Captured 4 times the rate of habu around Biimata Start dispersion investigation by placing simple fence along Route 58 Captured at Kabosoka and Isagawa of Nago-city, and Wakugawa in Nakijin-city
2005	Specified as Invasive Alien Species (enforce Alien Species Act) First victim on June 29 Increase capture rate at south of Route 58

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Origin: Southern part of Okinawa main island



Origin: Northern part of Okinawa main island



Origin: Southern part of Okinawa main island



*Gin-habu* (northern origin)

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Origin: Kume island



Origin: Amami island



Origin: Tokuno island



Origin: Tokuno island

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Albino

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Habu, length of 242cm (longest record, October 2011) <sup>36</sup>



242cm Habu Capture Site  
(Onna Village)

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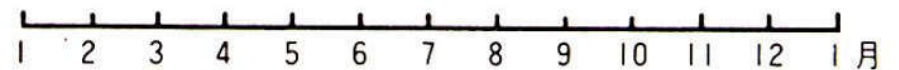
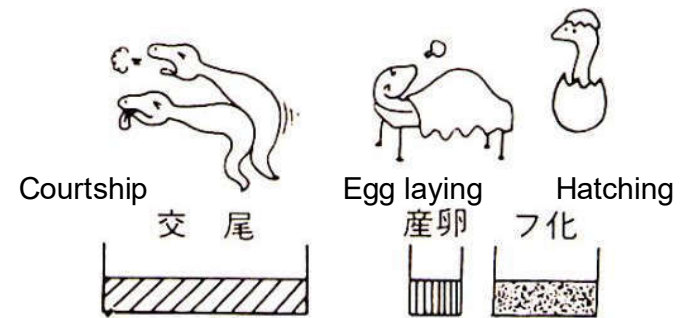


Fig 13 Habu Breeding  
図13 ハブの繁殖

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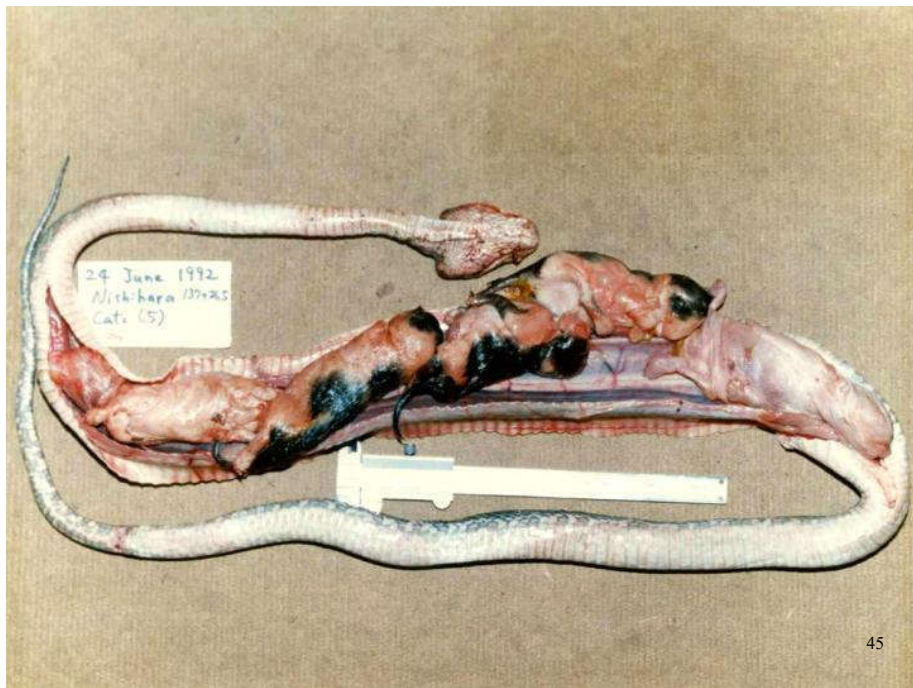
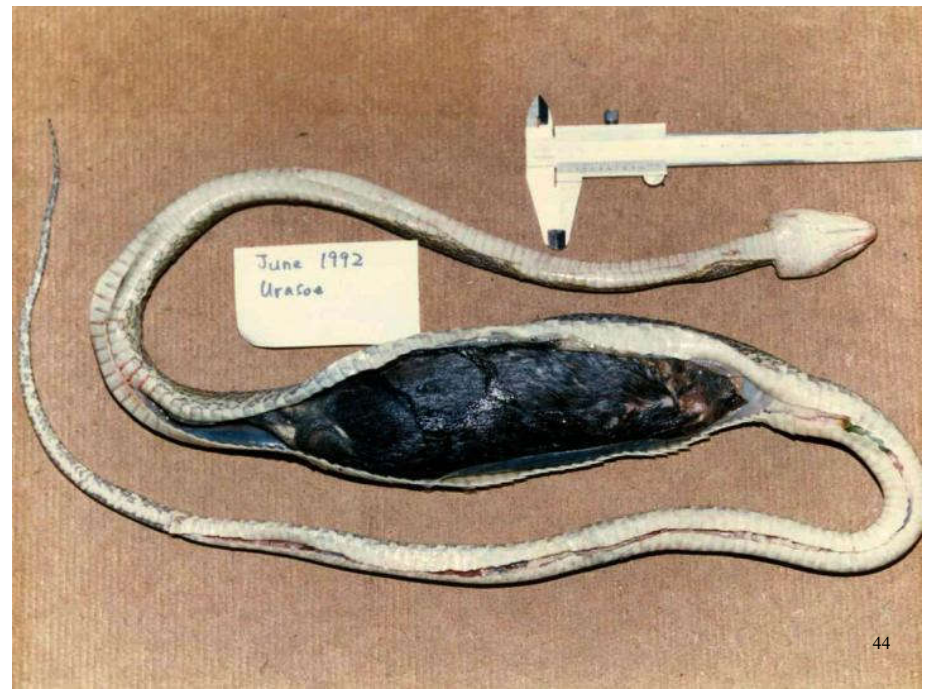
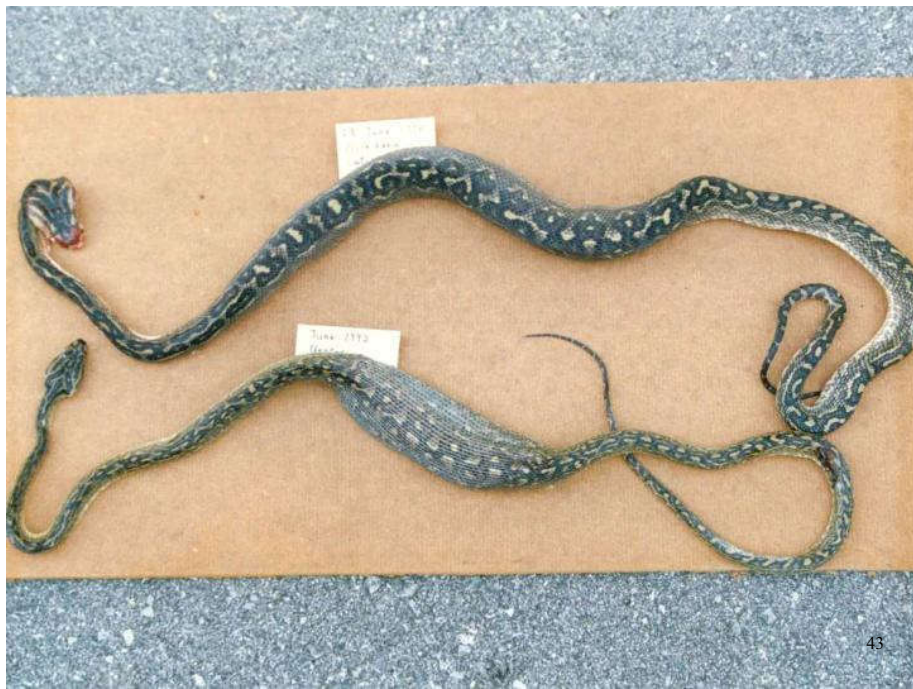


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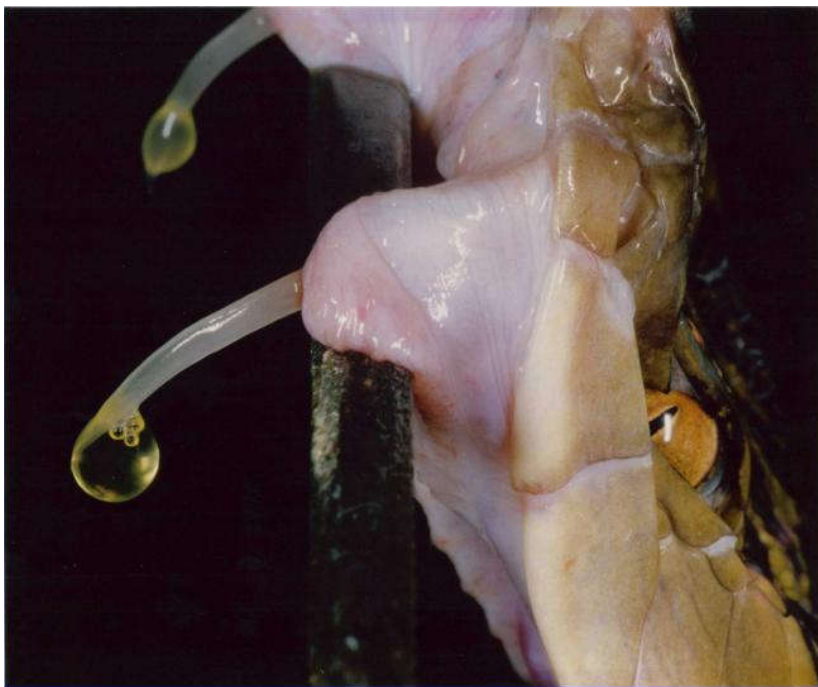


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## Types of Snake Venom

### Neurotoxin:

inhibits functions of nervous system  
(Cobra, Sea Snakes, etc.)



King Cobra



Slender-Necked  
Sea Snake

### Hemotoxic:

bleeding, swelling, pain  
(Habu, *Mamushi* (viper), Rattle Snake, etc.)



Habu

## Components of Habu Venom

### ■ Habu Venom is a mixture of digestive and degradation enzymes

- **Protease that affects blood**
  - Makes a hole in capillary vein and cause bleeding
- **Platelet aggregation inhibiting**
  - Does not clot blood from wound
- **Kinin releasing enzyme**
  - Affects pain and blood pressure
- **Amino acid oxidase**
  - Generate hydrogen peroxide
- **Others**
  - More than 26 components in total

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### Symptoms from Habu bite

- **Severe pain**
- **Swelling**
- **Bleeding** ▪ **Internal bleeding**

Increase  
Severity ↓

- **Low blood pressure**
- **Myonecrosis**
- **Circulatory disorder**

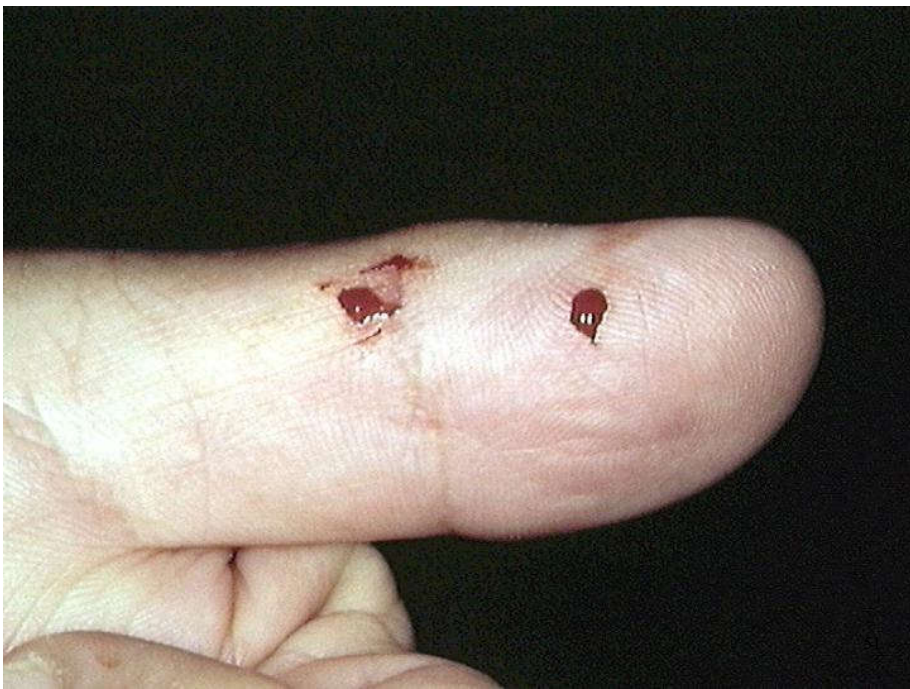
Even after a while, if there were no symptoms listed on the left, there was no poison or it was a small amount



- **Non-toxic bite**

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Bite mark of *Akamata*  
(Japanese rat snake)







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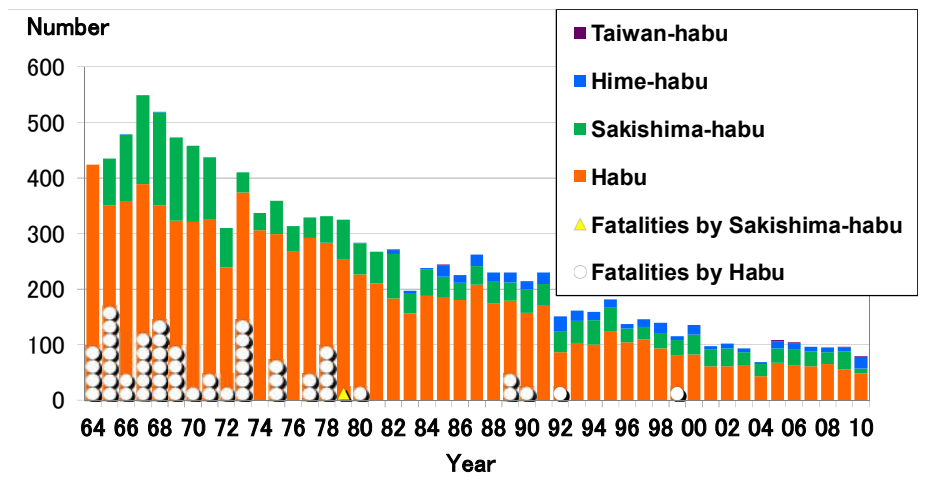


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## Changes in Victims Bitten by Habu



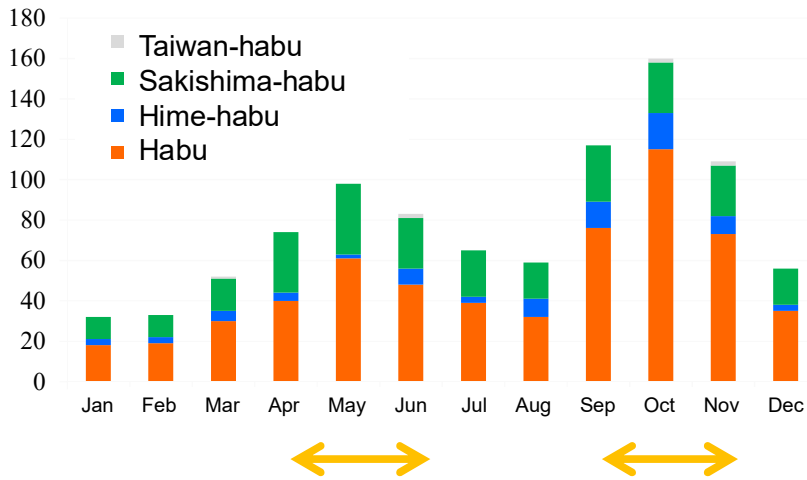
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# Monthly Statistics of Habu Bite Occurrences

(2000~2010)

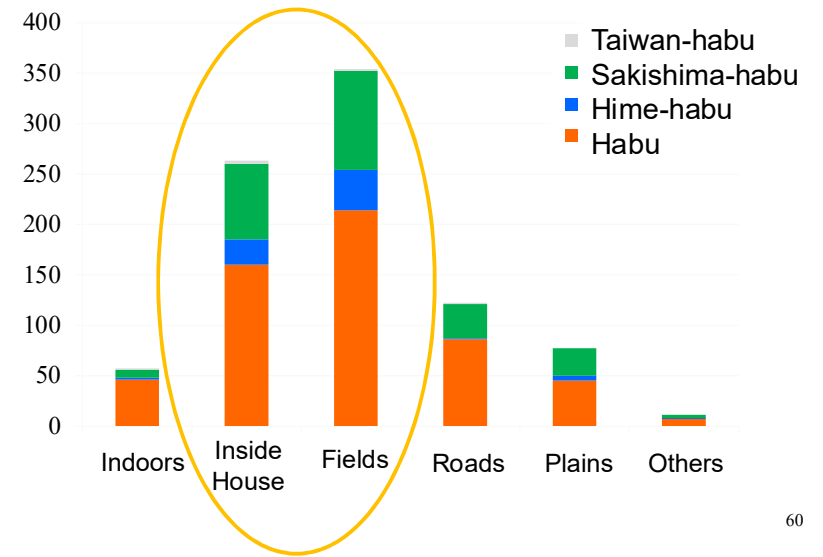
(Cases)



# Location of Habu Bite Occurrences

(2000~2010)

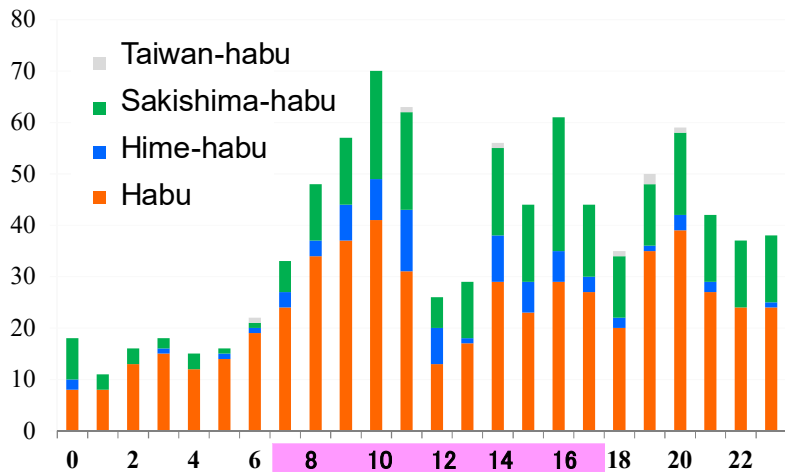
(Cases)



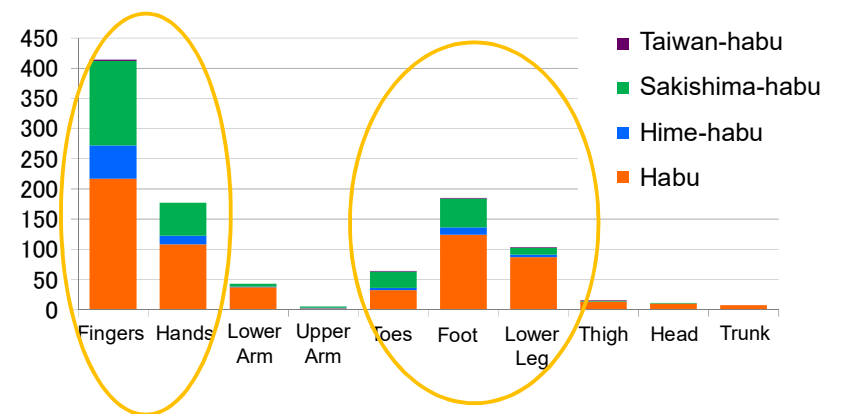
# Time of Habu Bite Occurrences

(2000~2010)

(Cases)



(Cases)





## First Aid

**Call for help** : call passers-by for help, use cell phone and go to hospital

**Remain calm** : Keep the bitten area and whole body rested.

**Tie down** : Loosely tie the subcutaneous vein enough to apply pressure (able to stick one finger).

Be careful not to tie too tightly and cause circulatory disorder.

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## What NOT to do

1. **Running around** : circulate venom quickly

2. **Wrapping wound site tightly**

Causes circulatory problems. When binding, tie loosely enough to insert one finger.

3. **Cutting the wound with knife**

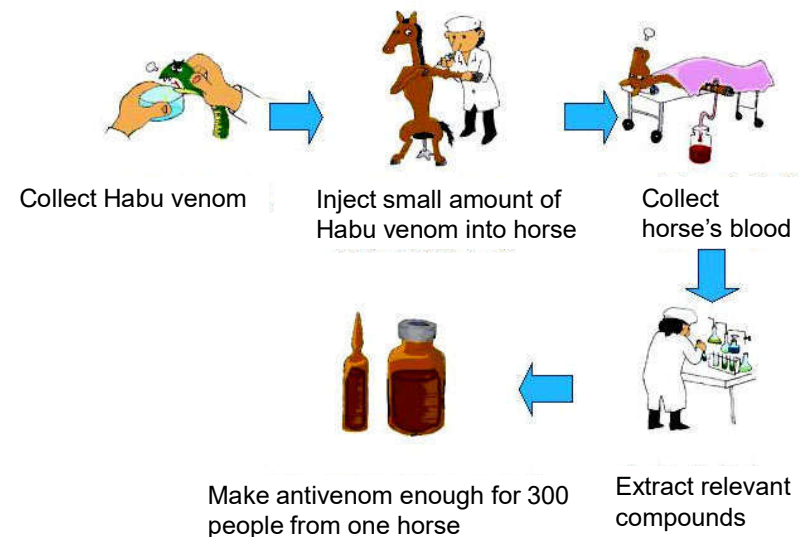
Interferes with hospital treatment.

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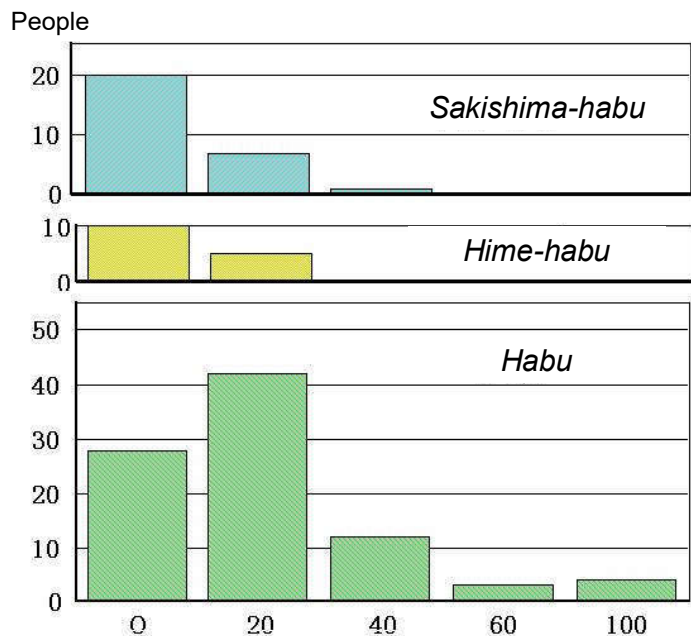
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## To Make Antivenom



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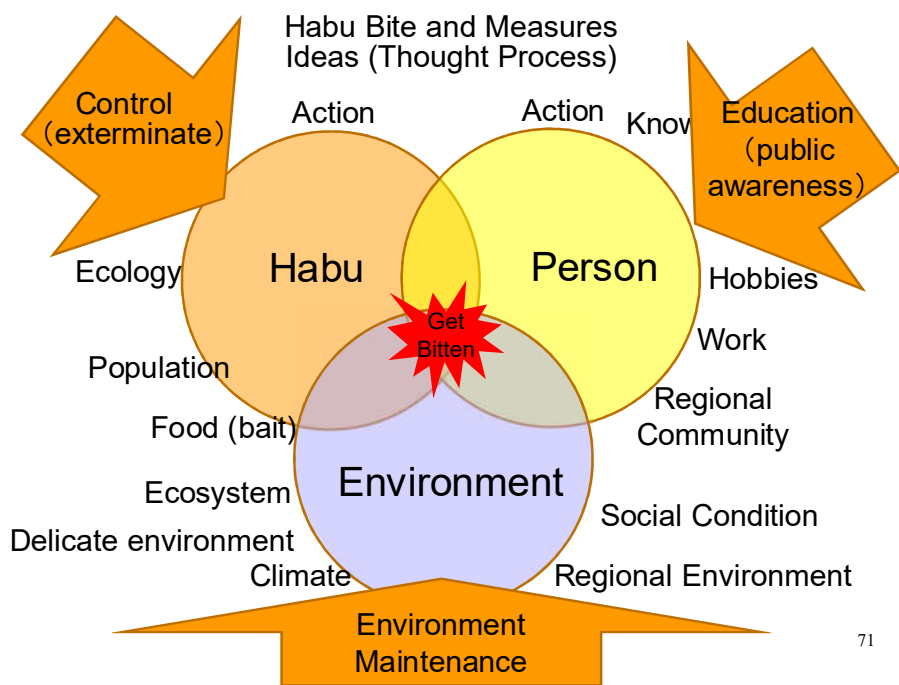
### Venoms of Crossbred Habu

Current Habu Horse Antivenom can neutralize crossbred venoms

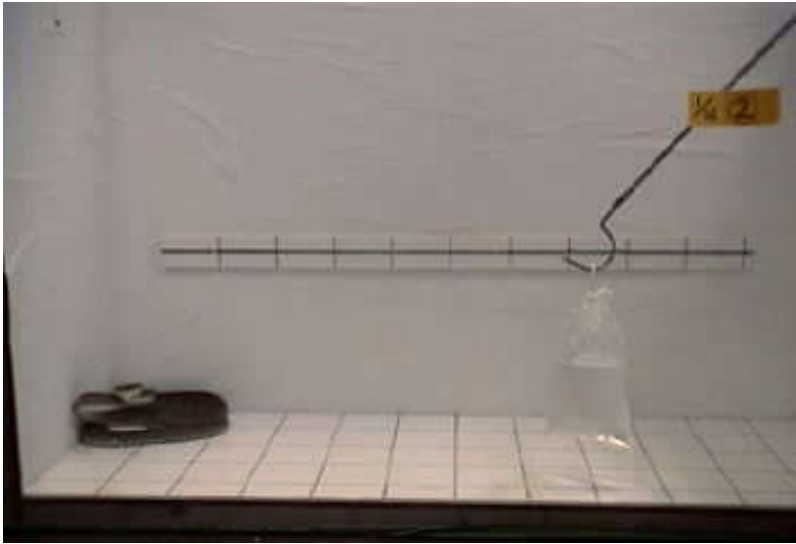


Crossbred with Taiwan-habu

Crossbred with Sakishima-habu



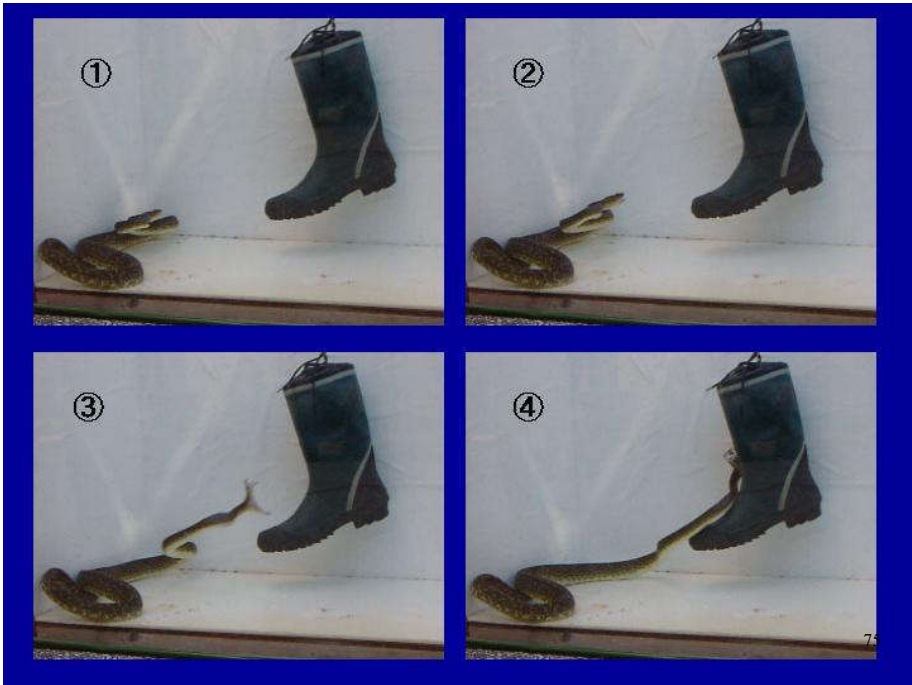




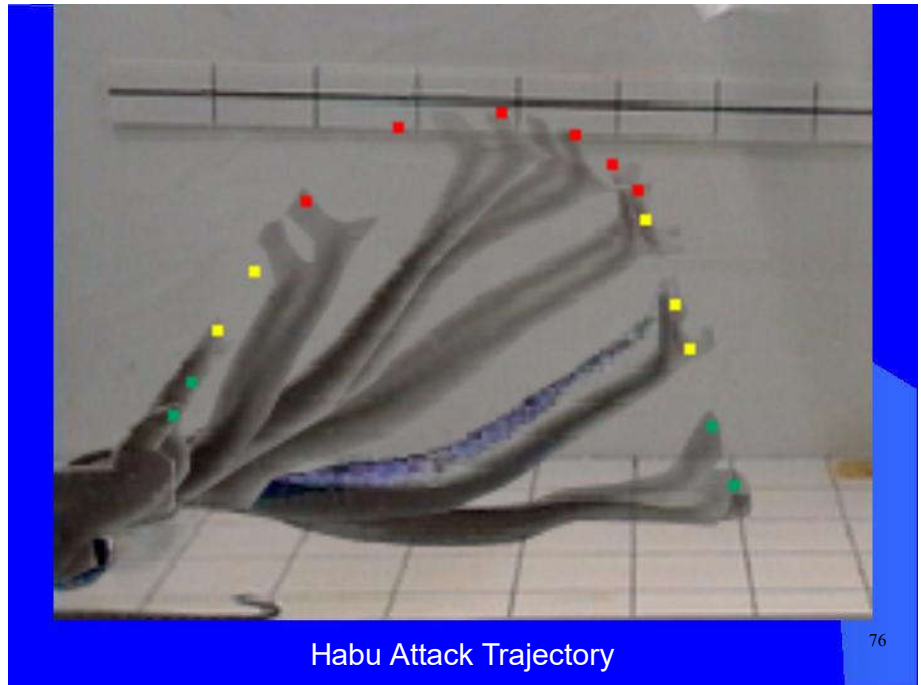
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Habu Attack Trajectory

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○ If you don't get close, you won't get bitten!

Stay away if you find Habu  
The attack range of the Habu is approximately half of its body length (up to 2/3)

It is important to devise methods to keep away *Habu* in farming and hiking areas  
(check with your eyes, use stick to move the grass, pay attention to obstacles, etc.)

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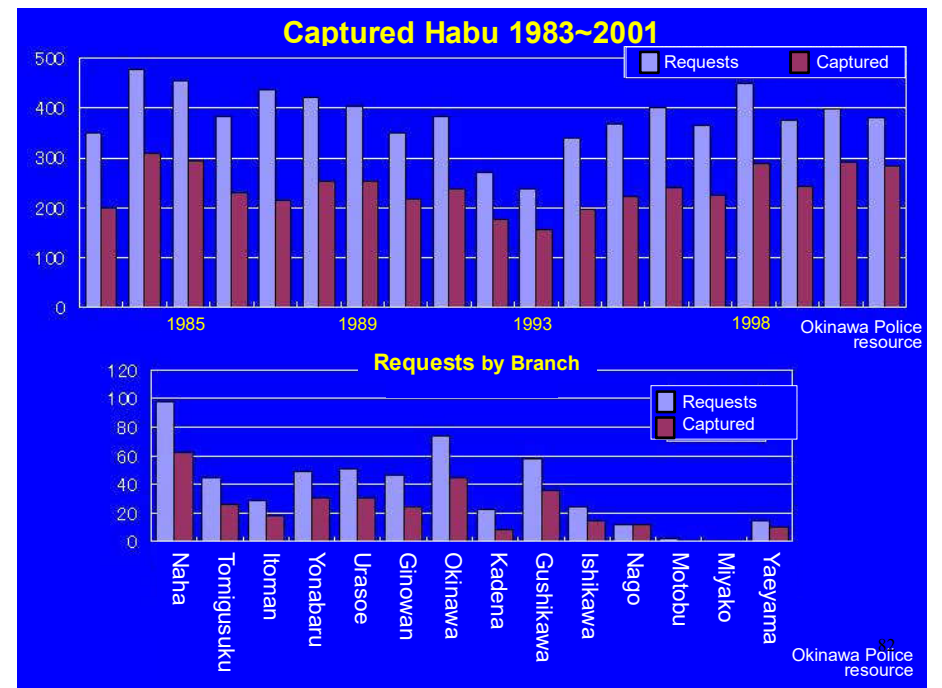




## Caught 180cm Habu

May 12, 2001 Okinawa Times (morning news)

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Habu Trap (bait trap)

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Habu Trap (bait trap)

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**Environment Maintenance** is  
Important for *Habu* Countermeasure

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Eliminate *Habu* Dwellings

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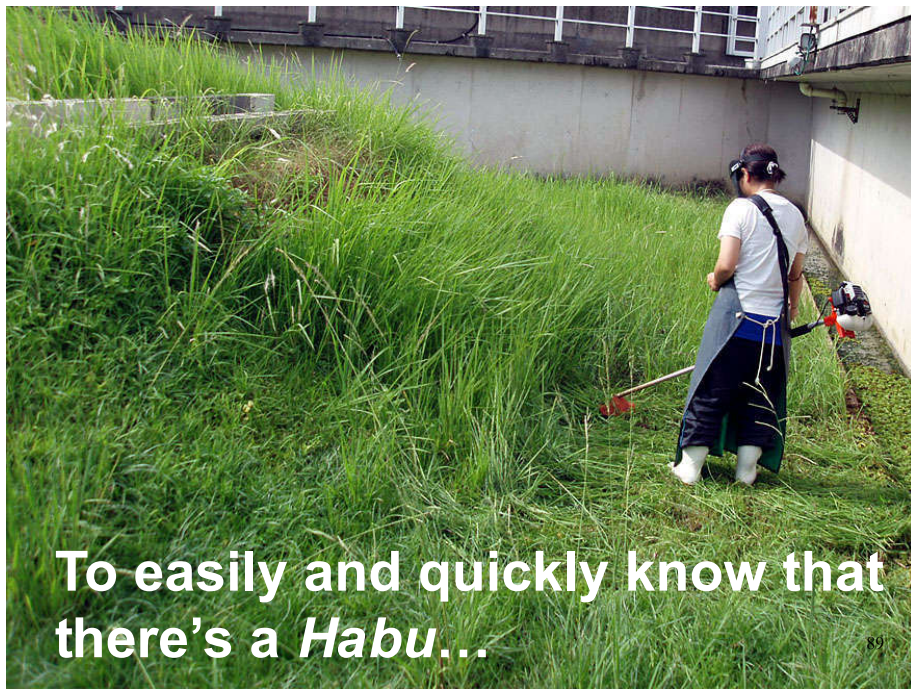


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To easily and quickly know that there's a *Habu*...



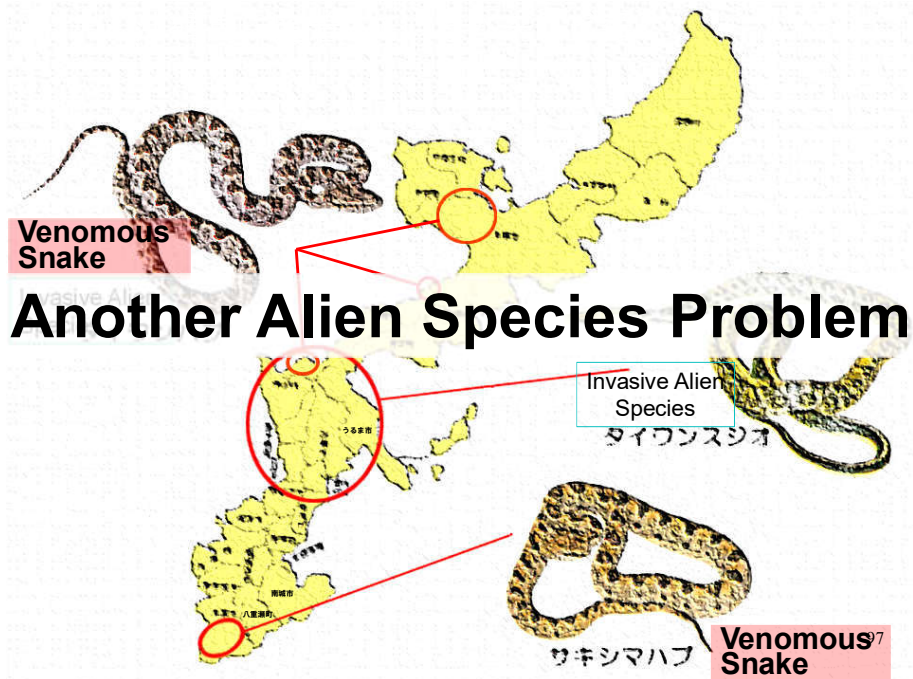
**Maintaining (mowing)  
is important !**











*Sakishima-habu* captured in Miyako



2017  
Habu caught on  
Aguni Island



April 19, 2002  
Captured *Akamata* on Minami-Daitō Island





Ball python (2002, Naha-city)

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Corn snake (2005, Yonabaru-city)

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California king snake (2005, Haeburu-city)

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Beauty rat snake (2011, Ginowan-city)

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Japanese rat snake (2012, Chatan)

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Great plains rat snake

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終  
The End