



## **Spider Wrestling in Zamboanga Peninsula, Mindanao, Philippines**

**Joan Aguhob<sup>1</sup>, Aimee Lynn Dupo<sup>2</sup>, Olga Nuñez<sup>1\*</sup>**

1-Department of Biological Sciences, College of Science and Mathematics, Mindanao State University-Iligan Institute of Technology, Tibanga, Iligan City, Philippines.

2-Institute of Biological Sciences, Environmental Biology Division and Museum of Natural History, University of the Philippines Los Baños, College, Laguna, Philippines.

\*Corresponding author's email: [olgamnuneza@yahoo.com](mailto:olgamnuneza@yahoo.com)

### **ABSTRACT**

*Selected spider species in the Philippines are collected and prepped to wrestle with one another on a stick until one is either dead or incapacitated. This betting game is considered one of the traditional pastimes in the country. This study aims to provide a detailed description of the spider wrestling sport in the three cities and seven municipalities of Zamboanga Peninsula through species analysis and key informant interviews. Age structures of the most common wrestling spider species are also presented. Results showed that derby spiders are mostly females and are from the Family Araneidae known as orb-weavers or garden spiders. Nine species of wrestling or derby spiders were documented and identified. Neoscona vigilans (67.87%) and Neoscona punctigera (19.46%) were the most commonly used spiders for fighting in the Zamboanga Peninsula. Spiders used for derby belong to different age classes, namely the immature, sub-adult and adult. Ninety six percent of the total spider population sampled was mature females. This means that the reproductive females are most affected by the spider wrestling industry. Correlation analysis showed that respondents with higher income bet the most in a game. Younger respondents do not bet but engage in spider wrestling only for fun. Different responses were gathered from the selected municipalities and cities of the Zamboanga Peninsula on the practices of collecting, keeping, and training a derby spider. This study also showed that most of the respondents were unaware of the importance of spiders in the environment as well as the disadvantages of this game, hence, making them collect as many spiders as they want. It appears that interventions of the local government, in terms of policy, awareness campaign, and other conservation measures are necessary to prevent unregulated collection of spiders due to this spider wrestling activity.*

**Keywords:** age structure, Araneidae, derby spiders, Neoscona vigilans, orb-weavers.

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### **INTRODUCTION**

Spiders of Southeast Asia have long been known to serve as biological control agents of insect pests in agricultural ecosystems [1, 2, 3]. Spiders consume large numbers of pest prey (e.g. leafhoppers, thrips, aphids, phytophagous mites) without damaging plants yet achieving equilibrium in pest control [4]. In addition, spiders are also among the traditional food of many cultures and have played an important role in the history of human nutrition [5, 6]. Vending of fried spiders as a specialty snack is also popular and available elsewhere in Cambodia as seen in many posted blogs. In terms of ethnic cultures, ethnomedicinal studies also include the use of animals for medicinal purposes of which spider is not an exception [7, 8].

Other parts of Asia make use of spiders for entertainment. Countries such as Japan, Philippines, and Singapore practice spider wrestling as sport [9]. In Japan, an annual traditional event in Kajiki town in Kagoshima is a spider-wrestling match called *Kumo Gassen* [10]. This long and unbroken tradition encourages both young and adults around Kajiki to look for stronger spiders of genus *Argiope* [11, 12, 13]. In Singapore, males of the genus *Thiania* are most commonly used notably the species *Thiania bhamoensis*, although another species of this genus may sometimes be used [14]. Meanwhile, spider fighting in the Philippines involves two spiders placed on a stick and allowed to grapple one another until one is either dead or incapacitated [9, 15]. What makes this game interesting for many Filipinos is the monetary bet one can put on a spider. The sport of spider wrestling occurs in different forms across the many islands of the country. Spider fighting in the Philippine islands is known by many names. In

Tagalog-speaking islands, the sport is called “*sabong ng gagamba*”. In Hiligaynon, it is termed as “*pahibag sang damang*” while in Cebuano, the practice is called “*paaway kaka*” or “*sabong sa kaka*”. Regardless of the variety of names by which this sport is called, spider wrestling remains as one of the major traditional pastimes in the rural areas of the country because it is an inexpensive and accessible game. With the majority of the population living in poverty, people opt to gamble especially in an inexpensive and accessible game. With its simplicity, spider wrestling matches can be set up almost anywhere. Most matches happen in and around schools, playgrounds, and other places where gamers normally congregate. The spiders used in this sport are commonly collected from trees and bushes which pervade the rural landscape of the Philippines [9].

The study on gambling that highlights spider wrestling in rural areas by Matejowsky [9] and the taxonomy of derby spiders by Barrion-Dupo [16] are among the few pioneering studies on this topic. Hence, this paper will also serve as headway on spiders, spider fighting, rural recreational sports, and gambling studies. Out of the many types of gambling activities in the Philippines, this study only focuses on spider-fighting sport and the practices associated with this game.

This study aims to describe the details of spider wrestling sport in Zamboanga Peninsula, Philippines. Hence, this study specifically sought to: 1) identify the spiders used for spider wrestling and their respective age classes; 2) account the bionomics of the common derby spiders inferred from constructed age structures and 3) profile spider wrestling enthusiast and their practices through Key Informant Interview (KII).

## MATERIALS AND METHODS

This study was conducted in three provinces namely Zamboanga del Norte, Zamboanga del Sur, Zamboanga Sibugay and the capital city which is Zamboanga City all in Zamboanga Peninsula in Mindanao. The peninsula is in region IX of the Philippines that lies between the Moro Gulf (part of the Celebes Sea) and the Sulu Sea. It is connected to the rest of Mindanao through an isthmus situated between Panguil Bay and Pagadian Bay. It has an area of roughly 5,600 square miles (14,500 square km). The specific areas selected were: Dipolog City, Sergio Osmeña Sr. and Tampilisan for Zamboanga del Norte; Dumingag, Ramon Magsaysay and Pagadian City for Zamboanga del Sur; Kabasalan, Ipil and Siay for Zamboanga Sibugay and Zamboanga City.

To identify the spider species commonly used in spider wrestling, spiders were either collected directly from the field or brought by the respondents, placed in a small container with 70% ethyl alcohol solution, labeled and sealed [17, 18, 19]. All specimens were then identified and checked for their age structure at the Museum of Natural History, University of the Philippines, Los Baños, Philippines. Frequency distribution and percentage were computed for analysis of the spider species used in spider wrestling and the age structure of each species.

Key informant interviews were conducted to gather the details and deep insights about the spider wrestling sport. Respondents, in this context of study, refer to those of any age group who had personally experienced, participated, and have first-hand knowledge on spider wrestling. The survey questionnaire used was deliberated for the purpose of obtaining useful information on the spiders used and collected; the methods of collection, caring and training of derby spiders; collection time and sites and the rules of the game itself. It also includes the profile of the respondents and their knowledge about the pros and cons of the game. Interviews were informal and conducted in the dialect (Cebuano) to enable the respondents to speak spontaneously. Twenty respondents were interviewed per area with a total of 200 for the selected municipalities of each province. The data gathered were written on a logbook and then coded in Microsoft Excel and analyzed. Correlation analysis was also performed to know the relationship between the income status of the respondents on the bet spent for the spider wrestling sport. Since interview responses were qualitative data, thematic analysis was done to examine and record the themes/patterns within the data.

## RESULTS AND DISCUSSION

Nine species of derby spiders were collected and identified representing four genera of the family Araneidae with a total of 221 individuals in all areas sampled (Table 1). For Zamboanga Sibugay province, three species out of 17 individuals were recorded in the municipality of Kabasalan, five species out of 28 individuals in the municipality of Siay and four species out of 24 individuals from the municipality of Ipil. In the province of Zamboanga del Sur, the municipality of Dumingag has three species out of 16 individuals. The municipality of Ramon Magsaysay has one species out of 28 individuals while the city of Pagadian has three species out of 23 individuals. In the province of Zamboanga del Norte, three species out of 17 individuals were recorded in the municipality of Tampilisan, two species out of 22 in the municipality of Sergio Osmeña and five species out of 18 individuals were from Dipolog City. Five species

were also recorded in Zamboanga City out of 28 individuals gathered. Of the nine species recorded, *Neoscona vigilans* (67.87%) was the most commonly used species of spiders for derby followed by *Neoscona punctigera* (19.46%). Only *Neoscona vigilans* was present in all sampling areas.

**Table 1.** Derby spider species collected in Zamboanga Peninsula.

| Species                       | Zamboanga Sibugay |    |    | Zamboanga del Sur |    |    | Zamboanga del Norte |    |    | Zamboanga City | Total |
|-------------------------------|-------------------|----|----|-------------------|----|----|---------------------|----|----|----------------|-------|
|                               | Kb                | Sy | Pl | Dm                | Rm | Pg | Tp                  | Sr | Dp |                |       |
| <i>Neoscona vigilans</i>      | 7                 | 23 | 14 | 11                | 28 | 19 | 13                  | 21 | 8  | 6              | 150   |
| <i>Neoscona punctigera</i>    | 8                 | 0  | 8  | 4                 | 0  | 1  | 1                   | 1  | 4  | 16             | 43    |
| <i>Neoscona cf. facundoii</i> | 0                 | 1  | 0  | 1                 | 0  | 0  | 0                   | 0  | 0  | 2              | 4     |
| <i>Neoscona lipana</i>        | 0                 | 1  | 0  | 0                 | 0  | 3  | 3                   | 0  | 3  | 0              | 10    |
| <i>Neoscona nautica</i>       | 0                 | 0  | 0  | 0                 | 0  | 0  | 0                   | 0  | 2  | 0              | 2     |
| <i>Polys illepidus</i>        | 2                 | 2  | 1  | 0                 | 0  | 0  | 0                   | 0  | 0  | 3              | 8     |
| <i>Polys sp.</i>              | 0                 | 0  | 1  | 0                 | 0  | 0  | 0                   | 0  | 0  | 1              | 2     |
| <i>Ordganius sp.</i>          | 0                 | 1  | 0  | 0                 | 0  | 0  | 0                   | 0  | 0  | 0              | 1     |
| <i>Argiope versicolor</i>     | 0                 | 0  | 0  | 0                 | 0  | 0  | 0                   | 0  | 1  | 0              | 1     |
| Total no. of individuals      | 17                | 28 | 24 | 16                | 28 | 23 | 17                  | 22 | 18 | 28             | 221   |
| Total no. of species          | 3                 | 5  | 4  | 3                 | 1  | 3  | 3                   | 2  | 5  | 5              |       |

Origins: Kb- Kabasalan, Sy- Siay, Pl- Ipil, Dm- Dumingag, Rm- Ramon Magsaysay, Pg-Pagadian, Tp-Tampilisan, Sr- Sergio Osmeña, Dp-Dipolog.

All collected spider specimens belong to different age classes: immature females (1.81%), sub-adult female category (0.90%), one immature male and a sub-adult male while most of them were mature female spiders (96.38%). There were no mature male spiders collected since most of the preferred derby spiders are females. Of all 221 individuals recorded, one was identified as an immature male *Neoscona vigilans* collected from the municipality of Ipil and another sub-adult male *Neoscona punctigera* from Zamboanga City. All the other specimens were identified females with a sub-adult *Neoscona vigilans* from the municipality of Siay and a sub-adult *Polys illepidus* from Zamboanga City. Four individuals of immature females were collected from the municipality of Ipil. Seven of the nine species identified were mature female (Table 2). Mature female spiders were the ones greatly affected in this spider wrestling industry. Hence, these spiders are shorn of its ability to reproduce reducing its population. A decreasing population is expected especially for *Neoscona* species. Age structure of the two most commonly used derby spiders is shown in Figures 1 and 2.

**Table 2.** Age structure of spider species collected.

| Species                       | Immature |        | Sub-adult |        | Mature |        | Total |
|-------------------------------|----------|--------|-----------|--------|--------|--------|-------|
|                               | male     | female | male      | female | male   | female |       |
| <i>Neoscona vigilans</i>      | 1        | 2      | 0         | 1      | 0      | 146    | 150   |
| <i>Neoscona punctigera</i>    | 0        | 0      | 1         | 0      | 0      | 42     | 43    |
| <i>Neoscona cf. facundoii</i> | 0        | 0      | 0         | 0      | 0      | 4      | 4     |
| <i>Neoscona lipana</i>        | 0        | 0      | 0         | 0      | 0      | 10     | 10    |
| <i>Neoscona nautica</i>       | 0        | 0      | 0         | 0      | 0      | 8      | 8     |
| <i>Polys illepidus</i>        | 0        | 1      | 0         | 1      | 0      | 0      | 2     |
| <i>Polys sp.</i>              | 0        | 1      | 0         | 0      | 0      | 0      | 1     |
| <i>Ordganius sp.</i>          | 0        | 0      | 0         | 0      | 0      | 1      | 1     |
| <i>Argiope versicolor</i>     | 0        | 0      | 0         | 0      | 0      | 2      | 2     |
| Total no. of individuals      | 1        | 4      | 1         | 2      | 0      | 213    | 221   |
| Percent per age class (%)     | 0.45     | 1.81   | 0.45      | 0.90   | 0.00   | 96.38  | 100   |

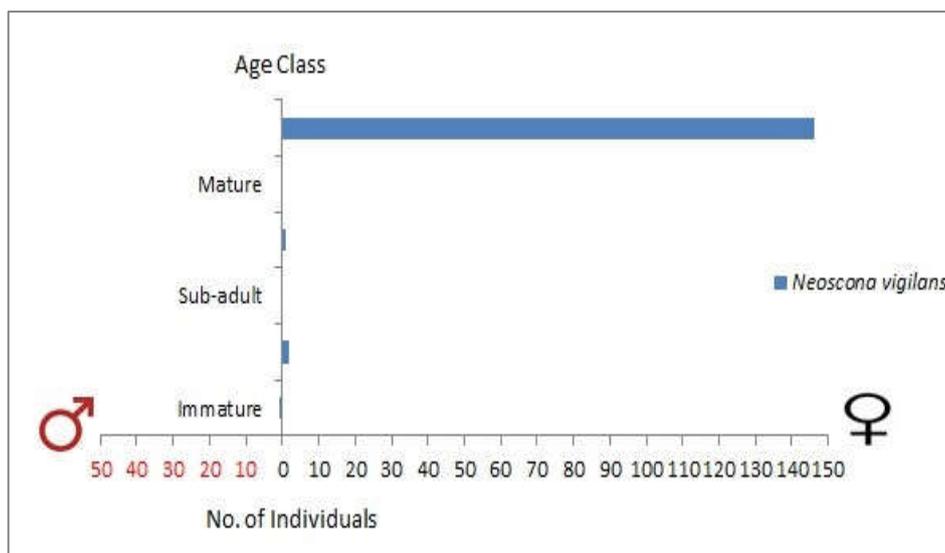


Figure 1. Age structure of *Neoscona vigilans*.

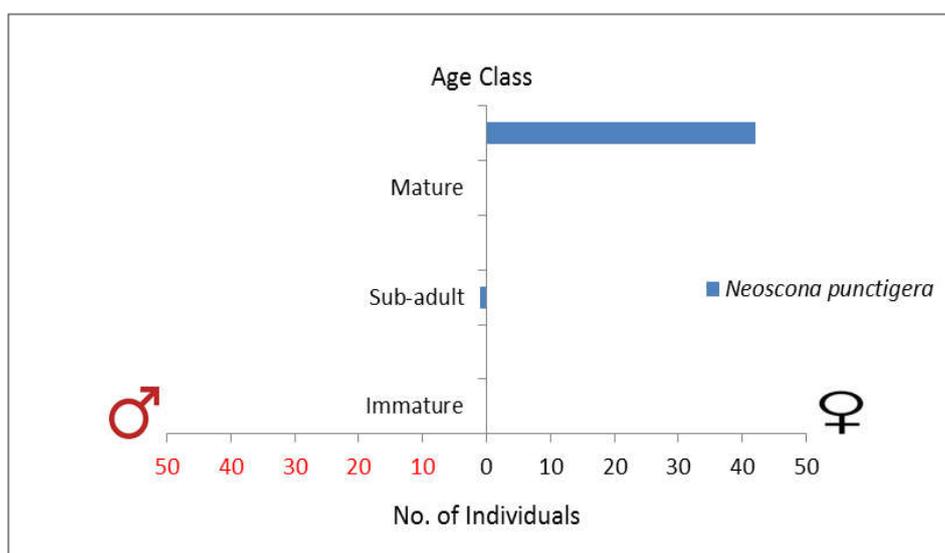


Figure 2. Age structure of *Neoscona punctigera*.

### Common and Local Names of Derby Spiders

Spiders are locally called by the respondents as “*lawa*”, “*alilawa*”, “*lawa-lawa*”, “*damang*” or “*kaka*”. Local names for each species are also different mostly depending on the habitat or where the spider was collected. Some gamers name the spiders based on the markings, shape, and color of the abdomen. Thus, one spider species can have many local names (Table 3).

Table 3. Common and local names of each species recorded.

| Scientific Name            | Common Name               | Local Name                                          |
|----------------------------|---------------------------|-----------------------------------------------------|
| <i>Neoscona vigilans</i>   | brown-legged spider       | <i>tigre-tigre, itom-itom, tuklo-tuklo</i>          |
| <i>Neoscona punctigera</i> | ghost spider              | <i>taga mais, pula-pula, taga hagonoy, sumbiyan</i> |
| <i>Neoscona facundoi</i>   | orb-weaver                | <i>marka uno, number 1</i>                          |
| <i>Neoscona lipana</i>     | spotted orb-weaver        | <i>aloman, marka zero</i>                           |
| <i>Neoscona nautica</i>    | brown sailor spider       | <i>marka krus</i>                                   |
| <i>Poltys illepidus</i>    | tree stump orb-weaver     | <i>kamel, trabungko</i>                             |
| <i>Poltys sp.</i>          | orb-weaver                | <i>kamel, trabungko</i>                             |
| <i>Ordganius sp.</i>       | bolas spider              | <i>kamel puti</i>                                   |
| <i>Argiope versicolor</i>  | St. Andrew’s cross spider | <i>tagabalay, spiderman</i>                         |

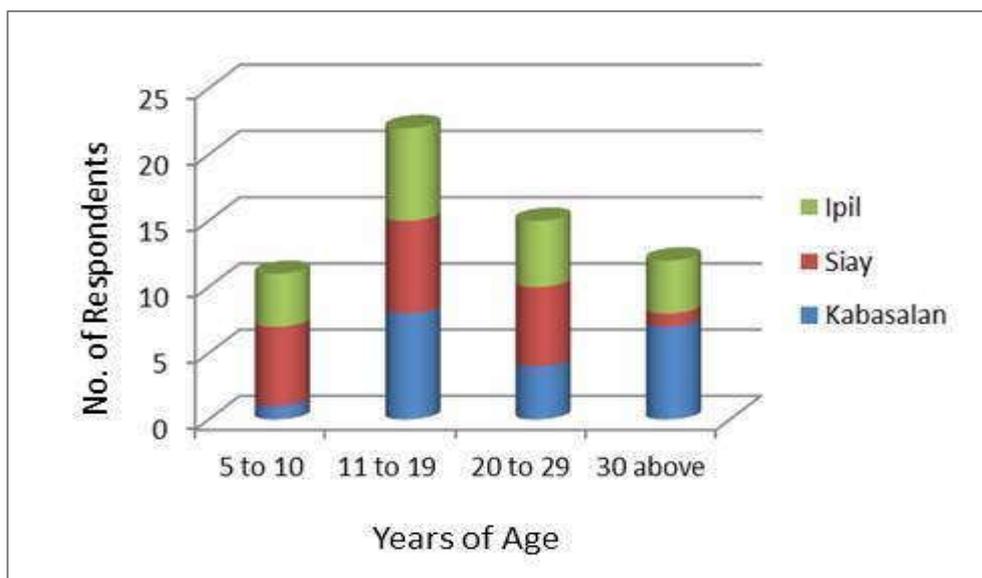
**Capturing Derby Spiders**

Many orb-weaving spiders are nocturnal and build their webs at night to catch prey [20]. Seventy eight percent of the respondents look for spiders from 1800 hours to 2300 hours. It is for them the most appropriate time to look for derby spiders with the use of some light like a flashlight. The web will radiate when illuminated which makes it easy to collect. Eleven percent of the respondents who were younger were not allowed by their parents to look for spiders at night time so they prefer to collect spiders before sundown at 1200 hours to 1700 hours. Other respondents (6%) wanted some adventure and would prefer looking for spider at midnight until 0500 hours in the morning. And some four percent will just roam around at 0600 hours to 1100 hours hoping to find derby spiders. Looking for ideal derby spiders really takes time and energy but gamers still collect those weaker and smaller ones as food for their choice spiders.

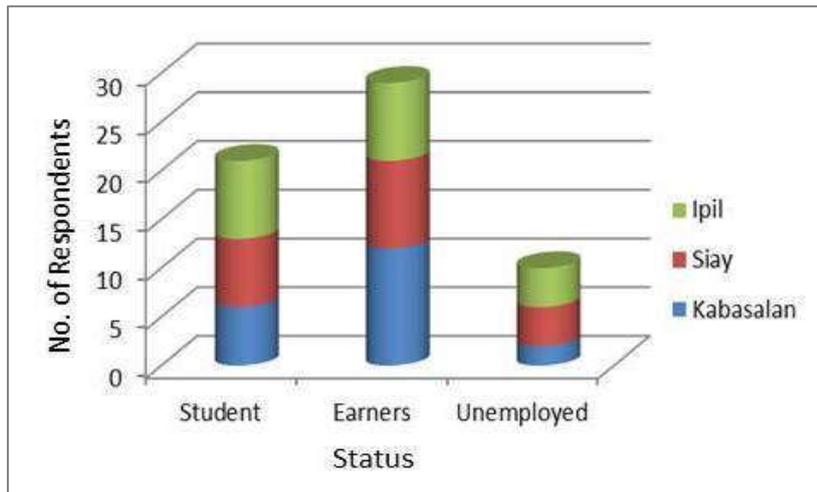
Derby spiders according to 62 % of the respondents are habitually collected from certain plants and trees such as siam weed (*Chromolaena odorata* (L.) P. Beauv.) locally known as “hagonoy” where spiders are bigger and more aggressive, big sage (*Lantana camara* L.) known as “baho-baho”, cogon grass (*Imperata cylindrica* (L.) P. Beauv.), sea hibiscus (*Hibiscus tiliaceus* L.) locally known as “balabago”, corn (*Zea mays* L.) local name “mais”, langsat (*Lansium domesticum* Corrêa) known as “lansones”, mango (*Mangifera indica* L.) known as “manga”, banana (*Musa acuminata* Colla) locally known as “saging”, guava (*Psidium guajava* L.) locally known as “bayabas”, kechapi (*Sandoricum koetjape* Merr.) local name “santol”, moringa (*Moringa oleifera* Lam.) local name “kamunggay”, jackfruit (*Artocarpus heterophyllus* Lam.) locally known as “nangka”, rice (*Oryza sativa* L.) known as “humay”, water apple [*Syzygium aqueum* (Burm. f.) Alston] locally known as “tambis”, star-apple (*Chrysophyllum cainito* L.) local name “caimito”, calamondin [*Citrofortunella microcarpa* (Bunge) Wijnands] local name “lemonsito” and even in flame-of-the-woods (*Ixora coccinea* L.) locally known as “santan”. Fighter spiders can also be found in an electric post (7.50%), near water bodies (6%) and spiders that are usually light in color are from rice/cornfields (24.50%). During the collection of spiders, it is common to get bitten. Spider venom is used for the speedy immobilization of prey [21] but the bite of derby spiders has minor, transient effects to humans. It is the spider instinct to bite for self-defense if provoked. Some of the respondents stated that spider bite was just like that of a mosquito bite but others also said it to be a bit worse than common insect bites. The bite can cause local pain, itchiness and redness that normally disappear in no time.

**Bets and Profile of the Respondents**

There were 200 respondents in this study, 20 from each of the 10 sampling areas. All of the respondents are males. The age of the respondents ranged from 7 to 50 years old. Figure 3 showed that most belong to age group 11 to 19 years old (31.50%) followed by those aged 20 to 29 years old (25.50%) then under 30 years old and above (23.50%) and the youngest in the cluster are those 5 to 10 years of age (19.50%). All 200 respondents comprised students (35.50%), unemployed (20.50%), and the earners (44%) who are either employed or self-employed and have regular income like clerks, farmers, drivers, vendors, road/construction workers and ordinary laborers (Figure 4).

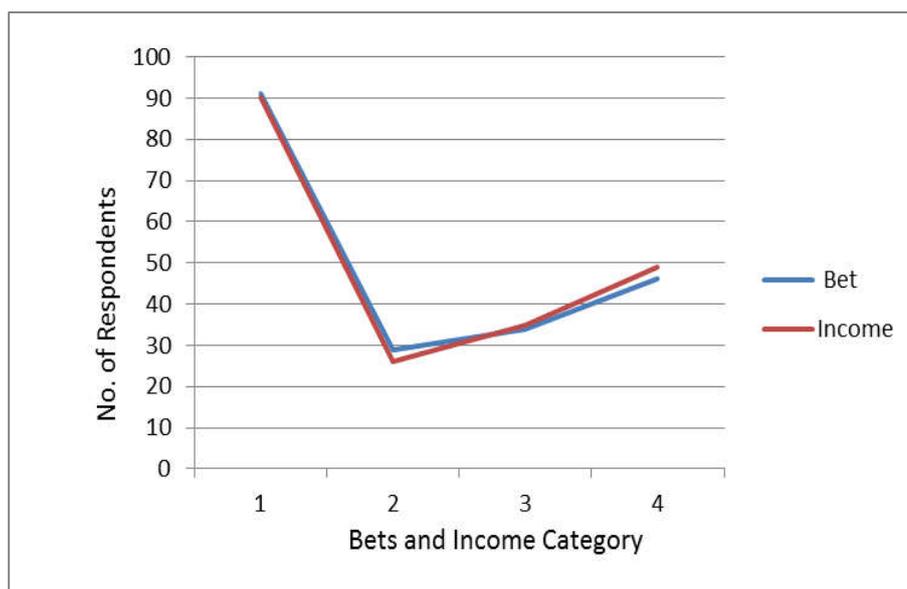


**Figure 3.** Age profile of the respondents.



**Figure 4.** Economic activity status of respondents.

The bet for this game is collected and counted before the fight starts so as to avoid any problems afterwards. Just like in a cock fighting, viewers can also bet. In Figure 5, bets for spider wrestling depend on the income of the gamer respondents. The resulting correlation coefficient shown in the graph is 0.995831. This indicates an almost perfect positive correlation (1.00) or a high correlation coefficient. Most of the students and unemployed respondents bet only less than 50 pesos in a game. Based on the interviews, younger respondents do not bet and do the spider wrestling game only for fun.



**Figure 5.** Correlation Analysis of Income and Bets of the Respondents

All 200 respondents prefer collecting large-sized spiders which for them means a better chance of winning. Female derby spiders are known not only to be numerous but are also more aggressive than the male. Black, red, and dark brown spiders are said to be stronger and ideal fighters. Moreover, spiders with longer leg length are much desired because these spiders do better in a fight and in coating their enemies with their silk. Respondents do not collect derby spiders based on web design but on the spider’s size and appearance.

**Spider Training**

Respondents collect derby spiders of their choice, place and keep them in a container to be starved for days or even weeks. A hungry spider is known to be the most aggressive fighter. The most known containers of these spiders are matchboxes or card boxes with compartments while other respondents prefer old plastic box organizers and some also use the midrib of a banana leaf with carved sections (Figure 6). Spiders need to be separated individually or else this can turn into a cannibalistic event [22].

Like a normal fighter, spiders need to be trained in many ways possible to make them ready to wrestle and fight. Respondents have different answers when asked on what to feed to their trained spiders. Some feed derby spiders with milk, honey, sugar, rainwater, tap water, young coconut juice, smaller spiders and even fresh human saliva. Dextrose and vitamins with brands like tiki-tiki, centrum, enervon, pharmaton and belamyl are also said to be best for derby spiders to make them more energetic and stronger for a fight. The supplements are given after days or weeks of starvation. The choice spider will be train to fight with the weaker or smaller spiders before putting them up for a proper fight. Some use rugby to stimulate their spiders to fight. Still other respondents do not prefer starvation but instead feed their choice spiders more often but make them fight on a stick more often too.



**Figure 6.** Derby spider containers.

### Spider Fight

Interview results showed that spider wrestling is seasonal and does not occur all year round but only within the third to the fourth quarter of the year. It normally happens starting from the month of August until the end of the year. Spider wrestling sport can happen anywhere, mostly during daytime when two opponents carrying their choice spiders will agree for a fight. A gamer will choose from their kept spiders a match for their opponent's choice. Those with the same body sizes are said to be a fair match but it still depends on the gamer's agreement on the match. Two spiders are then placed on the opposite side of a stick to let them meet and fight until one is either dead or incapacitated. According to the respondents and through observation during a fight, the combat commonly lasts less than a minute. But if it is a perfect match and both spider fighters are good and solid then the game can last for more than a minute even up to 5 minutes. During a fight, some spiders tend to jump out of the stick that also causes delay and tend to prolong the game time. Because of this, a rule was made that player spiders can only fall from the stick twice and the third time would already mean defeat even if the spider is neither harmed nor injured. The fight is also over when one of the player spiders is either badly injured or paralyzed and covered with silk by its opponent. Injured spiders are normally treated with moringa leaves (*Moringa oleifera* Lam.) but if badly injured and dying, gamers will just throw the spider away or feed it to another derby spider.

### Pros and Cons of Spider Wrestling

Only 46 out of the 200 respondents were documented to be aware of the importance of spiders in the environment especially on the knowledge of spiders being natural pest controllers. The remaining respondents were not only unaware but some really do not care at all as long as they have fun. Hence, they can collect as many spiders as they want. This may soon result to an environmental problem since the derby spider's population may soon be dramatically reduced creating ecological imbalance.

Spider fighting should be restricted according to 30% of the respondents. Those who were aware of its importance voted yes for restrictions since they are mostly farmers who wanted to get rid of pest naturally. Since spider wrestling becomes a form of vice for others and can contribute to the poverty problem of their area as well as causing people to become unproductive when addicted, some respondents suggested restriction. Some respondents said that instead of buying foods and other necessities, income is placed as bet to this game hoping for the money to double but most often fail. Other

adult respondents said the game should be restricted for students if it is already disturbing their studies. For instance, students acquire many absences and will play the game instead of studying their lessons. The remaining respondents answered no to restriction because for them it is just a simple pastime which helps them feel better especially after a day of work. Children also love the feeling of taking care or training something that can give them the experience of winning even with less or no monetary bet at all.

## CONCLUSION

Spider wrestling is a well-known yet seasonal game played in Zamboanga Peninsula, Philippines. The population of *Neoscona* spider species is mostly affected and in great danger in this kind of game. Spider wrestling has more disadvantages than benefits to the gamers. Spider is an important organism in the environment especially in pest control but has traditionally suffered lack of attention for conservation. Unawareness and ignorance of its importance could lead to overharvesting of spiders for the spider wrestling game. Interventions of the local government, in terms of policy, awareness campaign, and other conservation measures are necessary to prevent further damage to the ecosystem due to this unruly activity.

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